



**CGG**<sup>TM</sup>

HIGH PERFORMANCE  
CUTTING TOOLS  
2013 v1 PRODUCT LINE



# WEAPONS OF MASS PRODUCTION<sup>®</sup>



GORILLA MILLS | GORILLA DRILLS | CARBIDE END MILLS  
ROUGHERS | COATINGS



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A DIVISION OF CARBIDE GRINDING COMPANY, INC.

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GORILLA MILL  
HIGH PERFORMANCE  
CUTTERS



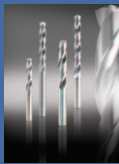
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COATINGS



**GORILLA MILL CUTTING TOOLS**  
**WEAPONS OF MASS PRODUCTION**



# Speeds and Feeds

PATENT NO.  
7,153,067  
7,367,754

## RECOMMENDED RPM AND FEED RATES FOR 4 FLUTE GORILLA MILLS

Work Piece Material	SFM	1/8"		1/4"		5/16"		3/8"		7/16"		1/2"		5/8"		3/4"		1"	
		RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Gray Cast Iron	500	15280	48.9	7640	36.6	6112	36.6	5093	34.6	4366	38.4	3820	38.2	3056	36.7	2547	35.6	1910	30.6
Soft Steels (>25 Rc)	600	18336	36.7	9168	36.7	7334	38.1	6112	36.7	5239	37.7	4584	38.5	3667	39.6	3056	39.1	2292	36.7
Alloy Steels (4140 )	350	10696	17.1	5348	21.4	4278	25.7	3565	25.7	3056	24.5	2674	25.7	2139	23.96	1783	24.2	1337	21.4
Tool Steels(A2,D2)	200	6112	9.8	3056	9.8	2445	11.7	2037	13.0	1746	13.97	1528	13.5	1222	12.7	1019	12.2	764	11.0
Die Steels (H13,P20)	225	6876	11.0	3438	15.1	2750	16.5	2292	18.3	1965	18.1	1719	17.2	1375	15.4	1146	15.6	860	13.8
Stainless Steel (303)	275	8404	13.5	4202	13.5	3362	16.1	2801	17.9	2401	18.3	2101	18.5	1681	17.5	1401	17.9	1051	15.97
Difficult Stainless Steel	225	6876	11.0	3438	9.6	2750	12.1	2292	13.8	1965	13.4	1719	13.8	1375	13.8	1146	13.8	860	12.0
High Temp. Alloys	110	3362	5.4	1681	4.7	1345	5.9	1121	6.3	960	6.2	840	6.4	672	5.9	560	6.3	420	5.6
Titanium	160	4890	7.8	2445	6.9	1956	9.4	1630	10.4	1397	10.6	1222	11.25	978	10.6	815	10.4	611	9.8

Speed and feeds are based on slotting conditions with depth of cut equal to the diameter of a 4 Flute Gorilla Mill  
 Note: When profiling use the 5 flute Gorilla Mill and run at 20% faster feed rates.

## RECOMMENDED "CHIMP LOADS" PER TOOTH FOR 4 FLUTE GORILLA MILLS

Work Piece Material	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Gray Cast Iron	0.0008	0.0010	0.0012	0.0015	0.0017	0.0025	0.0030	0.0035	0.0040
Soft Steels (>25 Rc)	0.0005	0.0007	0.0010	0.0013	0.0015	0.0021	0.0027	0.0032	0.0040
Alloy Steels (4140 )	0.0004	0.0006	0.0010	0.0015	0.0018	0.0024	0.0028	0.0034	0.0040
Tool Steels(A2,D2)	0.0004	0.0006	0.0008	0.0012	0.0016	0.0022	0.0026	0.0030	0.0036
Die Steels (H13,P20)	0.0004	0.0006	0.0011	0.0015	0.0020	0.0025	0.0028	0.0034	0.0040
Stainless Steel (303)	0.0004	0.0006	0.0008	0.0012	0.0016	0.0022	0.0026	0.0032	0.0038
Difficult Stainless Steel	0.0004	0.0005	0.0007	0.0011	0.0015	0.0020	0.0025	0.0030	0.0035
High Temp. Alloys	0.0004	0.0005	0.0007	0.0011	0.0014	0.0019	0.0022	0.0028	0.0033
Titanium	0.0004	0.0005	0.0007	0.0012	0.0016	0.0023	0.0027	0.0032	0.0040

## RECOMMENDED RPMs, IPMs AND "CHIMP LOADS" PER TOOTH FOR GORILLA MILL 3 FLUTE SILVERBACK

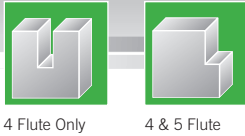
SFM	1/4"			5/16"			3/8"			1/2"			5/8"			3/4"			1"		
	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT
1300	19864	89.3	.0015	15891	95.3	.0020	13242	99.3	.0025	9932	89.4	.0030	7945	95.3	.0040	6621	99.3	.0050	4966	89.33	.0060

## RECOMMENDED RPMs, IPMs AND "CHIMP LOADS" PER TOOTH FOR GORILLA MILL 2 FLUTE SILVERBACK

SFM	1/4"			5/16"			3/8"			1/2"			5/8"			3/4"			1"		
	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT	RPM	IPM	CLPT
2000	30,560	122.2	0.002	24,448	127.2	0.0026	20,373	130.3	0.0032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22,920	174.1	0.0038	18,336	183.4	0.005	15,280	198.6	0.0065	11,460	206.3	0.009

## RECOMMENDED "SPEEDS AND FEEDS" FOR GORILLA MILL SASQUATCHES & 4 FLUTE KNUCKLEDRAGGERS

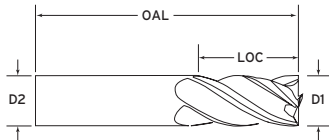
Work Piece Material	SFM K.D.	SFM SASQ.	3/8"				1/2"				5/8"				3/4"				1"			
			RPM		IPM		RPM		IPM		RPM		IPM		RPM		IPM		RPM		IPM	
			K.D.	SASQ.	K.D.	SASQ.	K.D.	SASQ.	K.D.	SASQ.	K.D.	SASQ.	K.D.	SASQ.	K.D.	SASQ.	K.D.	SASQ.	K.D.	SASQ.	K.D.	SASQ.
Soft Steels (>25 Rc)	750	700	7640	7130	67.2	54.2	5730	5348	57.3	49.2	4584	4278	58.6	51.3	3820	3565	48.9	45.6	2865	2674	45.8	42.7
Alloy Steels (4140 )	425	350	4329	3565	38.1	28.5	3247	2674	36.3	27.8	2597	2139	31.1	24.8	2164	1782	29.4	25.5	1623	1337	25.9	21.8
Tool Steels(A2,D2)	275	240	2801	2444	25.7	19.5	2101	1833	20.1	16.1	1680	1466	17.4	15.2	1400	1222	16.8	14.6	1050	916	15.2	13.9
Die Steels (H13,P20)	325	275	3310	2801	31.7	24.6	2483	2101	26.8	21.0	1986	1680	27.0	24.2	1655	1400	22.5	21.12	1241	1050	19.8	16.8
Stainless Steel (303)	300	275	3056	2801	29.3	24.6	2292	2101	22.0	19.3	1833	1680	24.1	22.1	1528	1400	21.4	19.6	1146	1050	18.3	16.8
Difficult Stainless Steel	270	225	2750	2292	23.1	17.4	2062	1719	18.9	15.1	1650	1375	19.8	17.0	1375	1146	18.7	14.6	1031	859	16.4	13.7
High Temp. Alloys	130	110	1324	1120	11.7	8.5	993	840	9.1	7.8	794	672	9.5	8.0	662	560	7.9	6.7	496	420	6.9	5.9
Titanium	180	160	1833	1629	13.8	11.2	1375	1222	13.7	12.2	1100	977	14.9	13.2	916	814	12.4	11.0	687	611	11.0	10.2



## 4 and 5 Flute

### 4 and 5 Flute Flat End

Patented variable flute and index design which reduces chatter and vibration. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.



Available in special diameters, lengths, and completely resharpenable.  
WF = Weldon Flat

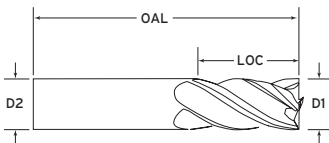
#### STANDARD FLAT END - 4 & 5 FLUTE GMX-35 COATED

D1	D2	LOC	OAL	ITEM # (4FL)	ITEM # (4FL) WF	ITEM # (5FL)
1/8	1/8	1/2	1-1/2	GM18F4	-	GM18F5
5/32	3/16	1/2	2.0	GM532F4		
3/16	3/16	5/8	2.0	GM316F4	-	GM316F5
1/4	1/4	3/4	2-1/2	GM14F4	-	GM14F5
5/16	5/16	7/8	2-1/2	GM516F4	-	GM516F5
3/8	3/8	7/8	2-1/2	GM38F4	-	GM38F5
7/16	7/16	1.0	2-1/2	GM716F4	GM716F4WF	GM716F5
1/2	1/2	1.0	3.0	GM12FH4	GM12FH4WF	GM12FH5
1/2	1/2	1-1/4	3.0	GM12F4	GM12F4WF	GM12F5
5/8	5/8	1-1/4	3-1/2	GM58F4	GM58F4WF	GM58F5
3/4	3/4	1-1/2	4.0	GM34F4	GM34F4WF	GM34F5
1.0	1.0	1-1/2	4.0	GM10F4	GM10F4WF	GM10F5



### 4 and 5 Flute Stub Length Flat End

Patented variable flute and index design which reduces chatter and vibration. Shorter flute length for rigidity. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.



Available in special diameters, lengths, and completely resharpenable.  
WF = Weldon Flat

#### STUB LENGTH FLAT END - 4 & 5 FLUTE GMX-35 COATED

D1	D2	LOC	OAL	ITEM # (4FL)	ITEM # (4FL) WF	ITEM # (5FL)
1/8	1/8	1/4	1-1/2	GM18FS4	-	GM18FS5
3/16	3/16	3/8	2.0	GM316FS4	-	GM316FS5
1/4	1/4	1/2	2-1/2	GM14FS4	-	GM14FS5
5/16	5/16	1/2	2-1/2	GM516FS4	-	*GM516FS5
3/8	3/8	5/8	2-1/2	GM38FS4	-	GM38FS5
7/16	7/16	5/8	2-1/2	GM716FS4	GM716FS4WF	GM716FS5
1/2	1/2	5/8	3.0	GM12FS4	GM12FS4WF	GM12FS5
5/8	5/8	3/4	3-1/2	GM58FS4	GM58FS4WF	GM58FS5
3/4	3/4	1.0	4.0	GM34FS4	GM34FS4WF	GM34FS5
1.0	1.0	1.0	4.0	GM10FS4	GM10FS4WF	GM10FS5



#### TOLERANCES

Cut Dia	+0.000/-0.002
Shank Dia	-0.0001/-0.0005
LOC	+0.025/+0.050
OAL	+/-0.050

\*NON STOCK STANDARD 3 TO 4 WEEKS



## Standard and Stub Length Radius End

PATENT NO.  
7,153,067  
7,367,754



4 Flute Only



4 &amp; 5 Flute

## 4 and 5 Flute

## 4 and 5 Flute Radius End

Patented variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available

Available in special diameters, lengths and completely resharpenable. WF = Weldon Flat

## STANDARD AND STUB LENGTH RADIUS END - 4 &amp; 5 FLUTE GMX-35 COATED

D1	D2	LOC	OAL	CORNER RADIUS	ITEM # (4FL)	ITEM # (4FL) WF	ITEM # (5FL)
1/8	1/8	1/4	1-1/2	.015-.02	GM18RS4	-	*GM18RS5
1/8	1/8	1/2	1-1/2	.015-.02	GM18R4	-	*GM18R5
5/32	3/16	1/2	2.0	.015-.02	GM532R4		
3/16	3/16	3/8	2.0	.015-.02	GM316RS4	-	*GM316RS5
3/16	3/16	5/8	2.0	.015-.02	GM316R4	-	GM316R5
1/4	1/4	1/2	2-1/2	.015-.02	GM14RS4	-	GM14RS5
1/4	1/4	1/2	2-1/2	.030R	GM14RS4030	-	GM14RS5030
1/4	1/4	1/2	2-1/2	.060R	GM14RS4060	-	GM14RS5060
1/4	1/4	3/4	2-1/2	.015-.02	GM14R4	-	GM14R5
1/4	1/4	3/4	2-1/2	.030R	GM14R4030	-	GM14R5030
1/4	1/4	3/4	2-1/2	.060R	GM14R4060	-	GM14R5060
5/16	5/16	1/2	2-1/2	.015-.02	GM516RS4	-	GM516RS5
5/16	5/16	1/2	2-1/2	.030R	GM516RS4030	-	GM516RS5030
5/16	5/16	1/2	2-1/2	.060R	GM516RS4060	-	GM516RS5060
5/16	5/16	7/8	2-1/2	.015-.02	GM516R4	-	GM516R5
5/16	5/16	7/8	2-1/2	.030R	GM516R4030	-	GM516R5030
5/16	5/16	7/8	2-1/2	.060R	GM516R4060	-	GM516R5060
3/8	3/8	5/8	2-1/2	.015-.02	GM38RS4	-	GM38RS5
3/8	3/8	5/8	2-1/2	.030R	GM38RS4030	-	GM38RS5030
3/8	3/8	5/8	2-1/2	.060R	GM38RS4060	-	GM38RS5060
3/8	3/8	7/8	2-1/2	.015-.02	GM38R4	-	GM38R5
3/8	3/8	7/8	2-1/2	.030R	GM38R4030	-	GM38R5030
3/8	3/8	7/8	2-1/2	.060R	GM38R4060	-	GM38R5060
7/16	7/16	5/8	2-1/2	.015-.02	GM716RS4	GM716RS4WF	GM716RS5
7/16	7/16	1.0	2-1/2	.015-.02	GM716R4	GM716R4WF	GM716R5
1/2	1/2	5/8	3.0	.015R	GM12RS4015	GM12RS4015WF	GM12RS5015
1/2	1/2	5/8	3.0	.025-.03	GM12RS4	GM12RS4WF	GM12RS5
1/2	1/2	5/8	3.0	.060R	GM12RS4060	GM12RS4060WF	GM12RS5060
1/2	1/2	5/8	3.0	.090R	GM12RS4090	GM12RS4090WF	GM12RS5090
1/2	1/2	5/8	3.0	.120R	GM12RS4120	GM12RS4120WF	GM12RS5120
1/2	1/2	1.0	3.0	.025-.030	GM12RH4	GM12RH4WF	GM12RH5
1/2	1/2	1-1/4	3.0	.015R	GM12R4015	GM12R4015WF	GM12R5015
1/2	1/2	1-1/4	3.0	.025-.030R	GM12R4	GM12R4WF	GM12R5
1/2	1/2	1-1/4	3.0	.060R	GM12R4060	GM12R4060WF	GM12R5060

## TOLERANCES

Cut Dia +.000/-.002

Shank Dia -.0001/-.0005

LOC +.025/+.050

OAL +/- .050

Radius +/- .002

\*NON STOCK STANDARD 3 TO 4 WEEKS

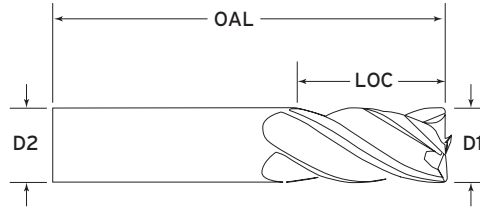


4 Flute Only



4 & 5 Flute

## 4 and 5 Flute



### STANDARD AND STUB LENGTH RADIUS END - 4 & 5 FLUTE GMX-35 COATED

D1	D2	LOC	OAL	CORNER RADIUS	ITEM # (4FL)	ITEM # (4FL) WF	ITEM # (5FL)
1/2	1/2	1-1/4	3.0	.090R	GM12R4090	GM12R4090WF	GM12R5090
1/2	1/2	1-1/4	3.0	.120R	GM12R4120	GM12R4120WF	GM12R5120
5/8	5/8	3/4	3-1/2	.030R	GM58RS4030	GM58RS4030WF	GM58RS5030
5/8	5/8	3/4	3-1/2	.035-.04	GM58RS4	GM58RS4WF	GM58RS5
5/8	5/8	3/4	3-1/2	.060R	GM58RS4060	GM58RS4060WF	GM58RS5060
5/8	5/8	3/4	3-1/2	.090R	GM58RS4090	GM58RS4090WF	GM58RS5090
5/8	5/8	3/4	3-1/2	.120R	GM58RS4120	GM58RS4120WF	GM58RS5120
5/8	5/8	1-1/4	3-1/2	.030R	GM58R4030	GM58R4030WF	GM58R5030
5/8	5/8	1-1/4	3-1/2	.035-.04	GM58R4	GM58R4WF	GM58R5
5/8	5/8	1-1/4	3-1/2	.060R	GM58R4060	GM58R4060WF	GM58R5060
5/8	5/8	1-1/4	3-1/2	.090R	GM58R4090	GM58R4090WF	GM58R5090
5/8	5/8	1-1/4	3-1/2	.120R	GM58R4120	GM58R4120WF	GM58R5120
3/4	3/4	1.0	4.0	.030R	GM34RS4030	GM34RS4030WF	GM34RS5030
3/4	3/4	1.0	4.0	.035-.04	GM34RS4	GM34RS4WF	GM34RS5
3/4	3/4	1.0	4.0	.060R	GM34RS4060	GM34RS4060WF	GM34RS5060
3/4	3/4	1.0	4.0	.090R	GM34RS4090	GM34RS4090WF	GM34RS5090
3/4	3/4	1.0	4.0	.120R	GM34RS4120	GM34RS4120WF	GM34RS5120
3/4	3/4	1-1/2	4.0	.030R	GM34R4030	GM34R4030WF	GM34R5030
3/4	3/4	1-1/2	4.0	.035-.04	GM34R4	GM34R4WF	GM34R5
3/4	3/4	1-1/2	4.0	.060R	GM34R4060	GM34R4060WF	GM34R5060
3/4	3/4	1-1/2	4.0	.090R	GM34R4090	GM34R4090WF	GM34R5090
3/4	3/4	1-1/2	4.0	.120R	GM34R4120	GM34R4120WF	GM34R5120
1.0	1.0	1.0	4.0	.030R	GM10RS4030	GM10RS4030WF	GM10RS5030
1.0	1.0	1.0	4.0	.035-.04	*GM10RS4	*GM10RS4WF	GM10RS5
1.0	1.0	1.0	4.0	.060R	GM10RS4060	GM10RS4060WF	GM10RS5060
1.0	1.0	1.0	4.0	.090R	GM10RS4090	GM10RS4090WF	GM10RS5090
1.0	1.0	1.0	4.0	.120R	GM10RS4120	GM10RS4120WF	GM10RS5120
1.0	1.0	1-1/2	4.0	.030R	GM10R4030	GM10R4030WF	GM10R5030
1.0	1.0	1-1/2	4.0	.035-.04	GM10R4	GM10R4WF	GM10R5
1.0	1.0	1-1/2	4.0	.060R	GM10R4060	GM10R4060WF	GM10R5060
1.0	1.0	1-1/2	4.0	.090R	GM10R4090	GM10R4090WF	GM10R5090
1.0	1.0	1-1/2	4.0	.120R	GM10R4120	GM10R4120WF	GM10R5120



#### TOLERANCES

Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/- .050
Radius +/- .002

\*NON STOCK STANDARD 3 TO 4 WEEKS  
WF = Weldon Flat



## Standard Length Ballnose

PATENT NO.  
7,153,067  
7,367,754

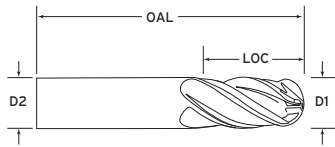


### 4 Flute



### Standard Length Ballnose

Patented variable flute and index design which reduces chatter and vibration. Extended reach or deep wall profiling. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.



Available in special diameters, lengths and completely resharpenable.  
WF = Weldon Flat

#### STANDARD BALLNOSE - 4 FLUTE GMX-35 COATED

D1	D2	LOC	OAL	ITEM # (4FL)	ITEM # (4FL) WF
1/8	1/8	1/2	1-1/2	GM18B4	-
5/32	3/16	1/2	2.0	GM532B4	
3/16	3/16	5/8	2.0	GM316B4	-
1/4	1/4	3/4	2-1/2	GM14B4	-
5/16	5/16	7/8	2-1/2	GM516B4	-
3/8	3/8	7/8	2-1/2	GM38B4	-
7/16	7/16	1.0	2-1/2	GM716B4	GM716B4WF
1/2	1/2	1-1/4	3.0	GM12B4	GM12B4WF
5/8	5/8	1-1/4	3-1/2	GM58B4	GM58B4WF
3/4	3/4	1-1/2	4.0	GM34B4	GM34B4WF
1.0	1.0	1-1/2	4.0	GM10B4	GM10B4WF

#### TOLERANCES

Cut Dia +.000/- .002

Shank Dia -.0001/- .0005

LOC +.025/+ .050

OAL +/- .050

Radius +/- .002

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4 Flute Only



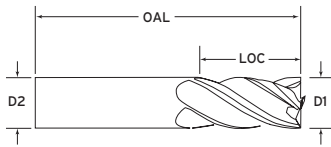
4 & 5 Flute

4 and 5 Flute

### Long, X-Long and Super Long Flat End

Patented variable flute and index design which reduces chatter and vibration. Extended reach or deep wall profiling. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths, and completely resharpenable.



#### LONG | XL | SUPER LONG - 4 & 5 FLUTE GMX-35 COATED

D1	D2	LOC	OAL	ITEM # (4FL)	ITEM # (5FL)
1/8	1/8	1.0	3.0	GM18FL4	*GM18FL5
3/16	3/16	1-1/4	3.0	GM316FL4	*GM316FL5
1/4	1/4	1-1/4	3.0	GM14FL4	*GM14FL5
1/4	1/4	1-1/2	4.0	GM14FXL4	*GM14FXL5
1/4	1/4	3.0	6.0	*GM14FSL4	*GM14FSL5
5/16	5/16	1-1/4	3.0	GM516FL4	*GM516FL5
5/16	5/16	1-1/2	4.0	*GM516FXL4	*GM516FXL5
3/8	3/8	1-1/4	3.0	GM38FL4	GM38FL5
3/8	3/8	2.0	4.0	GM38FXL4	GM38FXL5
3/8	3/8	3.0	6.0	*GM38FSL4	*GM38FSL5
1/2	1/2	1-1/2	4.0	GM12FL4	GM12FL5
1/2	1/2	2.0	4.0	GM12FXL4	GM12FXL5
1/2	1/2	3.0	6.0	GM12FSL4	GM12FSL5
5/8	5/8	2.0	4.0	GM58FL4	GM58FL5
5/8	5/8	3.0	6.0	*GM58FXL4	*GM58FXL5
3/4	3/4	2.0	4.0	GM34FL4	GM34FL5
3/4	3/4	3.0	6.0	GM34FXL4	GM34FXL5
1.0	1.0	2.0	4.0	GM10FL4	GM10FL5
1.0	1.0	3.0	6.0	GM10FXL4	GM10FXL5
1.0	1.0	4.0	7.0	GM10FSL4	GM10FSL5

\*NON STOCK STANDARD 3 TO 4 WEEKS



**TOLERANCES**

Cut Dia +.000/- .002
Shank Dia -.0001/- .0005
LOC +.025/+ .050
OAL +/- .050



# Long | X-Long | Super Long Radius End

PATENT NO.  
7,153,067  
7,367,754



4 Flute Only

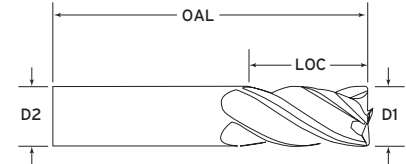


4 &amp; 5 Flute

## 4 and 5 Flute

### Long, X-Long and Super Long Radius End

Patented variable flute and index design which reduces chatter and vibration. Extended reach or deep wall profiling. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.



### LONG | XL | SUPER LONG - RADIUS END - 4 & 5 FLUTE GMX-35 COATED

D1	D2	LOC	OAL	CORNER RADIUS	ITEM # (4FL)	ITEM # (5FL)
1/8	1/8	1.0	3.0	.015-.02	*GM18RL4	*GM18RL5
3/16	3/16	1-1/4	3.0	.015-.02	*GM316RL4	*GM316RL5
1/4	1/4	1-1/4	3.0	.015-.02	GM14RL4	GM14RL5
1/4	1/4	1-1/2	4.0	.015-.02	*GM14RXL4	*GM14RXL5
1/4	1/4	3.0	6.0	.015-.02	*GM14RSL4	*GM14RSL5
5/16	5/16	1-1/4	3.0	.015-.02	*GM516RL4	*GM516RL5
5/16	5/16	1-1/2	4.0	.015-.02	*GM516RXL4	*GM516RXL5
3/8	3/8	1-1/4	3.0	.015-.02	GM38RL4	GM38RL5
3/8	3/8	2.0	4.0	.015-.02	GM38RXL4	*GM38RXL5
3/8	3/8	3.0	6.0	.015-.02	*GM38RSL4	*GM38RSL5
1/2	1/2	1-1/2	4.0	.025-.03	GM12RL4	GM12RL5
1/2	1/2	2.0	4.0	.025-.03	GM12RXL4	GM12RXL5
1/2	1/2	3.0	6.0	.025-.03	*GM12RSL4	*GM12RSL5
5/8	5/8	2.0	4.0	.035-.04	GM58RL4	*GM58RL5
5/8	5/8	3.0	6.0	.035-.04	*GM58RXL4	GM58RXL5
3/4	3/4	2.0	4.0	.035-.04	GM34RL4	GM34RL5
3/4	3/4	2-1/4	5.0	.035-.04	GM34RLH4	-
3/4	3/4	3.0	6.0	.035-.04	GM34RXL4	GM34RXL5
1.0	1.0	2.0	4.0	.035-.04	GM10RL4	GM10RL5
1.0	1.0	2-1/4	5.0	.035-.04	GM10RLH4	-
1.0	1.0	3.0	6.0	.035-.04	GM10RXL4	GM10RXL5
1.0	1.0	4.0	7.0	.035-.04	GM10RSL4	GM10RSL5

\*NON STOCK STANDARD 3 TO 4 WEEKS

#### TOLERANCES

Cut Dia +.000/-.002

Shank Dia -.0001/-.0005

LOC +.025/+.050

OAL +/- .050

Radius +/- .002



3 Flute

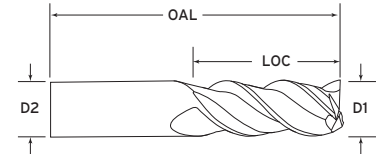


3 Flute

## 3 FLUTE SILVERBACK

### The Gorilla Mill® Silverback

Variable flute, variable index. Engineered to repel aluminum. For roughing and finishing of non-ferrous materials, aluminum, copper, brass, plastic, etc. High velocity, high material removal rate. Center cutting. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available. **Available in special diameters, lengths, CVD diamond coating, ZrN coating and completely resharpenable.**



### STANDARD RADIUS END - 3 FLUTE

D1	D2	LOC	OAL	CORNER RADIUS	ITEM # (RADIUS)
1/4	1/4	3/4	2-1/2	.015R	GMA14R3015
1/4	1/4	3/4	2-1/2	.030R	GMA14R3030
1/4	1/4	3/4	2-1/2	.060R	GMA14R3060
5/16	5/16	7/8	2-1/2	.015R	GMA516R3015
5/16	5/16	7/8	2-1/2	.030R	GMA516R3030
5/16	5/16	7/8	2-1/2	.060R	GMA516R3060
3/8	3/8	7/8	2-1/2	.015R	GMA38R3015
3/8	3/8	7/8	2-1/2	.030R	GMA38R3030
3/8	3/8	7/8	2-1/2	.060R	GMA38R3060
7/16	7/16	1.0	2-1/2	.015R	GMA716R3015
1/2	1/2	1-1/4	3.0	.015R	GMA12R3015
1/2	1/2	1-1/4	3.0	.030R	GMA12R3030
1/2	1/2	1-1/4	3.0	.060R	GMA12R3060
1/2	1/2	1-1/4	3.0	.090R	GMA12R3090
1/2	1/2	1-1/4	3.0	.120R	GMA12R3120
5/8	5/8	1-1/4	3-1/2	.015R	GMA58R3015
5/8	5/8	1-1/4	3-1/2	.030R	GMA58R3030
5/8	5/8	1-1/4	3-1/2	.060R	GMA58R3060
5/8	5/8	1-1/4	3-1/2	.090R	GMA58R3090
5/8	5/8	1-1/4	3-1/2	.120R	GMA58R3120
3/4	3/4	1-1/2	4.0	.015R	GMA34R3015
3/4	3/4	1-1/2	4.0	.030R	GMA34R3030
3/4	3/4	1-1/2	4.0	.060R	GMA34R3060
3/4	3/4	1-1/2	4.0	.090R	GMA34R3090
3/4	3/4	1-1/2	4.0	.120R	GMA34R3120
1.0	1.0	1-1/2	4.0	.015R	GMA10R3015
1.0	1.0	1-1/2	4.0	.030R	GMA10R3030
1.0	1.0	1-1/2	4.0	.060R	GMA10R3060
1.0	1.0	1-1/2	4.0	.090R	GMA10R3090
1.0	1.0	1-1/2	4.0	.120R	GMA10R3120



#### TOLERANCES

Cut Dia +.000/- .002

Shank Dia -.0001/- .0005

LOC +.025/+ .050

OAL +/- .050

Radius +/- .002



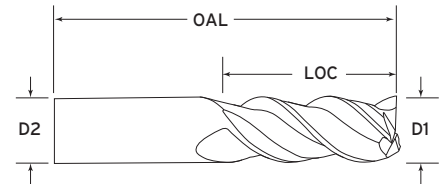
# Standard Length Silverback Flat and Radius End

PATENT NO.  
7,153,067  
7,367,754

## 2 and 3 Flute Silverback Continued

### The Gorilla Mill® Silverback

Variable flute, variable index. Engineered to repel aluminum. For roughing and finishing of non-ferrous materials, aluminum, copper, brass, plastic, etc. High velocity, high material removal rate. Center cutting. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available. **Available in special diameters, lengths, CVD diamond coating, ZrN coating and completely resharpenable. 2 flute also available. Call for details.**

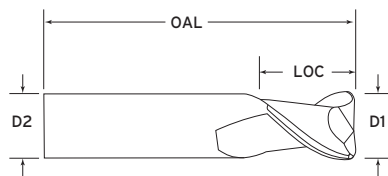


### STANDARD FLAT END - 3 FLUTE

D1	D2	LOC	OAL	ITEM # (3FL)
1/8	1/8	1/2	1-1/2	GMA18F3
3/16	3/16	5/8	2.0	GMA316F3
1/4	1/4	3/4	2-1/2	GMA14F3
5/16	5/16	7/8	2-1/2	GMA516F3
3/8	3/8	7/8	2-1/2	GMA38F3
7/16	7/16	1.0	2-1/2	GMA716F3
1/2	1/2	1-1/4	3.0	GMA12F3
5/8	5/8	1-1/4	3-1/2	GMA58F3
3/4	3/4	1-1/2	4.0	GMA34F3
1.0	1.0	1-1/2	4.0	GMA10F3

### LONG | X-LONG FLAT END - 3 FLUTE

D1	D2	LOC	OAL	ITEM # (3FL)
1/4	1/4	1-1/2	4.0	GMA14FL3
5/16	5/16	1-1/2	4.0	GMA516FL3
3/8	3/8	1.0	2-1/2	GMA38FHL3
3/8	3/8	2.0	4.0	GMA38FXL3
1/2	1/2	1-1/2	4.0	GMA12FL3
1/2	1/2	2.0	4.0	GMA12FXL3
5/8	5/8	1-5/8	4.0	GMA58FHL3
5/8	5/8	2.0	4.0	GMA58FL3
3/4	3/4	1-5/8	4.0	GMA34FHL3
3/4	3/4	2.0	4.0	GMA34FL3
1.0	1.0	2.0	4.0	GMA10FL3
1.0	1.0	2-1/2	5.0	GMA10FXL3



### GORILLA MILL SILVERBACK - 2 FLUTE

D1	D2	LOC	OAL	ITEM #(FLAT)	ITEM #(RADIUS)	AVAILABLE RADIUS
1/8	1/8	1/2	2-1/2	GMA18F2	GMA18R2(RAD)	.015, .030
3/16	3/16	5/8	3.0	GMA316F2	GMA316R2(RAD)	.015, .030
1/4	1/4	3/4	3.0	GMA14F2	GMA14R2(RAD)	.015, .030, .060
5/16	5/16	7/8	3.0	GMA516F2	GMA516R2(RAD)	.015, .030, .060
3/8	3/8	7/8	3.0	GMA38F2	GMA38R2(RAD)	.015, .030, .060
7/16	7/16	1.0	3.5	GMA716F2	GMA716R2(RAD)	.015, .030, .060
1/2	1/2	1-1/4	3.5	GMA12F2	GMA12R2(RAD)	.015, .030, .060, .090, .120
5/8	5/8	1-1/4	3.5	GMA58F2	GMA58R2(RAD)	.030, .060, .090, .120
3/4	3/4	1-1/2	4.0	GMA34F2	GMA34R2(RAD)	.030, .060, .090, .120
1.0	1.0	1-1/2	4.0	GMA10F2	GMA10R2(RAD)	.030, .060, .090, .120

#### TOLERANCES

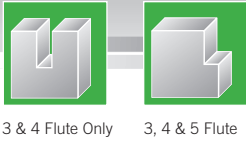
Cut Dia +.000/-0.002

Shank Dia -.0001/-0.0005

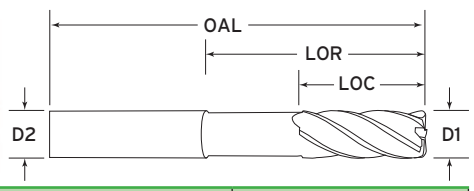
LOC +.025/+0.050

OAL +/-0.050

Radius +/-0.002



**4 and 5 Flute  
3 Flute Silverback**  
Available in special diameters, lengths  
and completely resharpenable.



**Silverback 3 Flute Neck Relieved Flat And Radius**

Variable flute, variable index design. Engineered to repel aluminum. For roughing and finishing of non-ferrous materials. Extended neck provides clearance for deep pocketing, slotting or profiling. Center cutting. 2 flute also available. Call for details.

D1	D2	LOC	OAL	LOR	FLAT	.030 RADIUS	.060 RADIUS	.090 RADIUS	.120 RADIUS
1/2	1/2	9/16	5.0	1-1/2	GMANR12F31.500	GMANR12R30301.500	GMANR12R30601.500	GMANR12R30901.500	GMANR12R31201.500
1/2	1/2	9/16	5.0	2-1/4	GMANR12F32.250	GMANR12R30302.250	GMANR12R30602.250	GMANR12R30902.250	GMANR12R31202.250
1/2	1/2	9/16	6.0	3-1/4	GMANR12F33.250	GMANR12R30303.250	GMANR12R30603.250	GMANR12R30903.250	GMANR12R31203.250
3/4	3/4	1.0	6.0	1-1/2	GMANR34F31.500	GMANR34R30301.500	GMANR34R30601.500	GMANR34R30901.500	GMANR34R31201.500
3/4	3/4	1.0	6.0	2-1/4	GMANR34F32.250	GMANR34R30302.250	GMANR34R30602.250	GMANR34R30902.250	GMANR34R31202.250
3/4	3/4	1.0	6.0	3-1/4	GMANR34F33.250	GMANR34R30303.250	GMANR34R30603.250	GMANR34R30903.250	GMANR34R31203.250
3/4	3/4	1.0	7.0	4-1/4	GMANR34F34.250	GMANR34R30304.250	GMANR34R30604.250	GMANR34R30904.250	GMANR34R31204.250
1.0	1.0	1-1/8	6.0	3.0	GMANR10F33.000	GMANR10R30303.000	GMANR10R30603.000	GMANR10R30903.000	GMANR10R31203.000
1.0	1.0	1-1/8	7.0	4-1/4	GMANR10F34.250	GMANR10R30304.250	GMANR10R30604.250	GMANR10R30904.250	GMANR10R31204.250

**Note: RPM may have to be adjusted based on reach (SFM)**

**Gorilla Mill 4 Flute Neck Relieved Chamfered And Radius GMX-35 Coated**

Patented variable flute, variable index design which reduces chatter and vibration. For roughing and finishing of stainless, inconel, titanium, tool steels, hardened steels and other ferrous materials. Extended neck provides clearance for deep pocketing, slotting or profiling. Center cutting.

D1	D2	LOC	OAL	LOR	RADIUS	45° CHAMFER	ITEM#
1/2	1/2	5/8	4.0	2-1/4	X	.020	GMNR12C42.250
1/2	1/2	5/8	4.0	2-1/4	.030	X	GMNR12R40302.250
1/2	1/2	5/8	4.0	2-1/4	.060	X	GMNR12R40602.250
1/2	1/2	5/8	4.0	2-1/4	.090	X	GMNR12R40902.250
1/2	1/2	5/8	4.0	2-1/4	.120	X	GMNR12R41202.250
3/4	3/4	1.0	4-1/2	2-1/4	X	.020	GMNR34C42.250
3/4	3/4	1.0	6.0	3-1/4	X	.020	GMNR34C43.250
3/4	3/4	1.0	6.0	3-1/4	.030	X	GMNR34R40303.250
3/4	3/4	1.0	6.0	3-1/4	.060	X	GMNR34R40603.250
3/4	3/4	1.0	6.0	3-1/4	.090	X	GMNR34R40903.250
3/4	3/4	1.0	6.0	3-1/4	.120	X	GMNR34R41203.250
1.0	1.0	1-1/8	4-1/2	2-1/4	X	.020	GMNR10C42.250
1.0	1.0	1-1/8	6.0	3-1/4	X	.020	GMNR10C43.250
1.0	1.0	1-1/8	6.0	3-1/4	.030	X	GMNR10R40303.250
1.0	1.0	1-1/8	6.0	3-1/4	.060	X	GMNR10R40603.250
1.0	1.0	1-1/8	6.0	3-1/4	.090	X	GMNR10R40903.250
1.0	1.0	1-1/8	6.0	3-1/4	.120	X	GMNR10R41203.250
1.0	1.0	1-1/8	7.0	4-1/4	X	.020	GMNR10C44.250

**Gorilla Mill 5 Flute Neck Relieved Radius GMX-35 Coated**

Patented variable flute, variable index design which reduces chatter and vibration. For finishing of stainless, inconel, titanium, tool steels, hardened steels and other ferrous materials. Extended neck provides clearance for deep pocketing, slotting or profiling. Center cutting.

D1	D2	LOC	OAL	LOR	RADIUS	ITEM#
1/2	1/2	1-1/4	4.0	2-1/4	.030	GMNR12R50302.250
1/2	1/2	1-1/4	4.0	2-1/4	.060	GMNR12R50602.250
1/2	1/2	1-1/4	4.0	2-1/4	.090	GMNR12R50902.250
1/2	1/2	1-1/4	4.0	2-1/4	.120	GMNR12R51202.250
3/4	3/4	1-1/2	6.0	3-1/4	.030	GMNR34R50303.250
3/4	3/4	1-1/2	6.0	3-1/4	.060	GMNR34R50603.250
3/4	3/4	1-1/2	6.0	3-1/4	.090	GMNR34R50903.250
3/4	3/4	1-1/2	6.0	3-1/4	.120	GMNR34R51203.250
1.0	1.0	1-3/4	6.0	3-1/4	.030	GMNR10R50303.250
1.0	1.0	1-3/4	6.0	3-1/4	.060	GMNR10R50603.250
1.0	1.0	1-3/4	6.0	3-1/4	.090	GMNR10R50903.250
1.0	1.0	1-3/4	6.0	3-1/4	.120	GMNR10R51203.250

**TOLERANCES**

- Cut Dia +.000/- .002
- Shank Dia -.0001/- .0005
- LOC +.025/+ .050
- OAL +/- .050
- Radius +/- .002

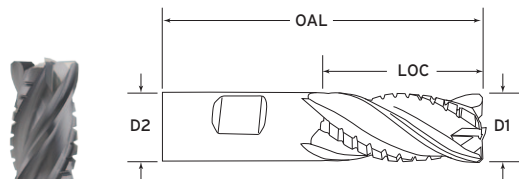


## Roughers

PATENT NO.  
7,153,067  
7,367,754



## Roughers



## The Gorilla Mill® Sasquatch

Engineered using Gorilla Mill technology. Extremely high material removal rates while maintaining a superb finish. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. See "Speeds and Feeds" chart. Center cutting. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths, and completely resharpenable.

## SASQUATCH - 45° CHAMFERED, GMX-35 COATED

D1	D2	LOC	OAL	ITEM #
3/8	3/8	9/16	2-1/2	GMHX38CS4
3/8	3/8	7/8	2-1/2	GMHX38C4
1/2	1/2	5/8	3.0	GMHX12CS4
1/2	1/2	1-1/4	3.0	GMHX12C4
5/8	5/8	7/8	3-1/2	GMHX58CS4
5/8	5/8	1-1/4	3-1/2	GMHX58C4
3/4	3/4	1.0	4.0	GMHX34CS4
3/4	3/4	1-5/8	4.0	GMHX34C4
1.0	1.0	1.0	4.0	GMHX10CS4
1.0	1.0	1-3/4	4.0	GMHX10C4



## KNUCKLEDRAGGER - 45° CHAMFERED, GMX-35 COATED

D1	D2	LOC	OAL	ITEM # 3-4FL	ITEM # 5FL
1/4	1/4	5/16	2-1/2	GMKD14CS3	n/a
1/4	1/4	3/4	2-1/2	GMKD14C3	n/a
5/16	5/16	3/8	2-1/2	GMKD516CS4	n/a
5/16	5/16	7/8	2-1/2	GMKD516C4	n/a
3/8	3/8	9/16	2-1/2	GMKD38CS4	GMKD38CS5
3/8	3/8	7/8	2-1/2	GMKD38C4	GMKD38C5
1/2	1/2	5/8	3.0	GMKD12CS4	GMKD12CS5
1/2	1/2	1.0	3.0	GMKD12CH4	GMKD12CH5
1/2	1/2	1-1/4	3.0	GMKD12C4	GMKD12C5
5/8	5/8	7/8	3-1/2	GMKD58CS4	GMKD58CS5
5/8	5/8	1-1/4	3-1/2	GMKD58C4	GMKD58C5
3/4	3/4	1.0	4.0	GMKD34CS4	GMKD34CS5
3/4	3/4	1-5/8	4.0	GMKD34C4	GMKD34C5
1.0	1.0	1.0	4.0	GMKD10CS4	GMKD10CS5
1.0	1.0	1-3/4	4.0	GMKD10C4	GMKD10C5

## SILVERBACK KNUCKLEDRAGGER - 45° CHAMFERED, UNCOATED

D1	D2	LOC	OAL	ITEM # 3FL
3/8	3/8	9/16	2-1/2	GMAKD38CS3
3/8	3/8	7/8	2-1/2	GMAKD38C3
1/2	1/2	5/8	3.0	GMAKD12CS3
1/2	1/2	1.0	3.0	GMAKD12CH3
1/2	1/2	1-1/4	3.0	GMAKD12C3
5/8	5/8	7/8	3-1/2	GMAKD58CS3
5/8	5/8	1-1/4	3-1/2	GMAKD58C3
3/4	3/4	1.0	4.0	GMAKD34CS3
3/4	3/4	1-5/8	4.0	GMAKD34C3
1.0	1.0	1.0	4.0	GMAKD10CS3
1.0	1.0	1-3/4	4.0	GMAKD10C3

## TOLERANCES

Cut Dia +.000/- .002

Shank Dia -.0001/- .0005

LOC +.025/+ .050

OAL +/- .050

45° Chamfered



**phenom**<sup>®</sup>

phe•nom [fee-nom, fi-nom]

– noun

*Informal* a person or thing of extremely outstanding abilities and qualities.

*Specifically Designed to Beat High Temp Alloys into Submission.*

*[from phenom(enon)]*



### Speeds & Feeds for Phenom

Check online at <http://www.cgctool.com/calculator> for all speeds and feeds calculations.



# Standard and Stub Length Radius End

PATENT NO.  
7,153,067



5 Flute



## Speeds & Feeds Calculator

Check online at <http://www.cgctool.com/calculator> for all speeds and feeds calculations.

## 5 Flute

### 5 Flute Radius End

Patented variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials including: stainless, inconel, titanium, tool steels, and hardened materials. Should be run at specific parameters. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

**Available in special diameters, lengths and completely resharpenable.**

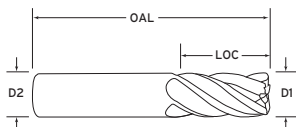
Based on the original 5 flute Gorilla Mill, the "Phenom" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials such as:

- Inconel
- Waspalloy
- Hastelloy
- Rene
- Stellite
- 17-4 SS
- 15-5 SS
- 13-8 SS
- Titanium

**Gorilla Mill®:** Variable helix/index design allows higher material removal rates, superior finish, and lower heat generation for improved wear resistance.

**GMS<sup>2</sup> Nano-Composite Coating:** Extremely hard and extremely wear- and heat-resistant to over 2010°F.

**Design Benefits:** To crush, mame, and otherwise bully High Temp Alloys into submission.



### STANDARD AND STUB LENGTH RADIUS END - 5 FLUTE GMS<sup>2</sup> COATED

D1	D2	LOC	OAL	CORNER RADIUS	ITEM # (5FL)
1/4	1/4	1/2	2-1/2	.015-.020	GMHT14RS5
1/4	1/4	1/2	2-1/2	.030	GMHT14RS5030
1/4	1/4	1/2	2-1/2	.060	GMHT14RS5060
1/4	1/4	3/4	2-1/2	.015-.020	GMHT14R5
1/4	1/4	3/4	2-1/2	.030	GMHT14R5030
1/4	1/4	3/4	2-1/2	.060	GMHT14R5060
5/16	5/16	1/2	2-1/2	.015-.020	GMHT516RS5
5/16	5/16	1/2	2-1/2	.030	GMHT516RS5030
5/16	5/16	1/2	2-1/2	.060	GMHT516RS5060
5/16	5/16	7/8	2-1/2	.015-.020	GMHT516R5
5/16	5/16	7/8	2-1/2	.030	GMHT516R5030
5/16	5/16	7/8	2-1/2	.060	GMHT516R5060
3/8	3/8	5/8	2-1/2	.015-.020	GMHT38RS5
3/8	3/8	5/8	2-1/2	.030	GMHT38RS5030
3/8	3/8	5/8	2-1/2	.060	GMHT38RS5060
3/8	3/8	7/8	2-1/2	.015-.020	GMHT38R5
3/8	3/8	7/8	2-1/2	.030	GMHT38R5030
3/8	3/8	7/8	2-1/2	.060	GMHT38R5060
7/16	7/16	5/8	2-1/2	.015-.020	GMHT716RS5
7/16	7/16	1	2-1/2	.015-.020	GMHT716R5
1/2	1/2	5/8	3	.015	GMHT12RS5015
1/2	1/2	5/8	3	.025-.030	GMHT12RS5
1/2	1/2	5/8	3	.060	GMHT12RS5060
1/2	1/2	5/8	3	.090	GMHT12RS5090
1/2	1/2	5/8	3	.120	GMHT12RS5120
1/2	1/2	1	3	.025-.030	GMHT12RH5



#### TOLERANCES

Cut Dia +.000/-.002

Shank Dia -.0001/-.0005

LOC +.025/+.050

OAL +/- .050

Radius +/- .002



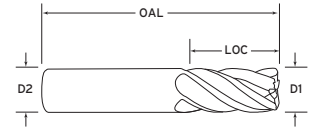


5 Flute



### Speeds & Feeds Calculator

Check online at <http://www.cgctool.com/calculator>  
for all speeds and feeds calculations.



## STANDARD AND STUB LENGTH RADIUS END - 5 FLUTE GMS<sup>2</sup> COATED

D1	D2	LOC	OAL	CORNER RADIUS	ITEM # (5FL)
1/2	1/2	1-1/4	3	.015	GMHT12R5015
1/2	1/2	1-1/4	3	.025-.030	GMHT12R5
1/2	1/2	1-1/4	3	.060	GMHT12R5060
1/2	1/2	1-1/4	3	.090	GMHT12R5090
1/2	1/2	1-1/4	3	.120	GMHT12R5120
5/8	5/8	3/4	3-1/2	.030	GMHT58RS5030
5/8	5/8	3/4	3-1/2	.035-.040	GMHT58RS5
5/8	5/8	3/4	3-1/2	.060	GMHT58RS5060
5/8	5/8	3/4	3-1/2	.090	GMHT58RS5090
5/8	5/8	3/4	3-1/2	.120	GMHT58RS5120
5/8	5/8	1-1/4	3-1/2	.030	GMHT58R5030
5/8	5/8	1-1/4	3-1/2	.035-.040	GMHT58R5
5/8	5/8	1-1/4	3-1/2	.060	GMHT58R5060
5/8	5/8	1-1/4	3-1/2	.090	GMHT58R5090
5/8	5/8	1-1/4	3-1/2	.120	GMHT58R5120
3/4	3/4	1	4	.030	GMHT34RS5030
3/4	3/4	1	4	.035-.040	GMHT34RS5
3/4	3/4	1	4	.060	GMHT34RS5060
3/4	3/4	1	4	.090	GMHT34RS5090
3/4	3/4	1	4	.120	GMHT34RS5120
3/4	3/4	1-1/2	4	.030	GMHT34R5030
3/4	3/4	1-1/2	4	.035-.040	GMHT34R5
3/4	3/4	1-1/2	4	.060	GMHT34R5060
3/4	3/4	1-1/2	4	.090	GMHT34R5090
3/4	3/4	1-1/2	4	.120	GMHT34R5120
1	1	1	4	.030	GMHT10RS5030
1	1	1	4	.035-.040	GMHT10RS5
1	1	1	4	.060	GMHT10RS5060
1	1	1	4	.090	GMHT10RS5090
1	1	1	4	.120	GMHT10RS5120
1	1	1-1/2	4	.030	GMHT10R5030
1	1	1-1/2	4	.035-.040	GMHT10R5
1	1	1-1/2	4	.060	GMHT10R5060
1	1	1-1/2	4	.090	GMHT10R5090
1	1	1-1/2	4	.120	GMHT10R5120



### TOLERANCES

Cut Dia +.000/-.002

Shank Dia -.0001/-.0005

LOC +.025/+.050

OAL +/- .050

Radius +/- .002



# Standard and Stub Length Flat End

PATENT NO.  
7,153,067



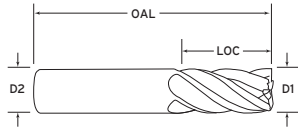
5 Flute



## Speeds & Feeds Calculator

Check online at <http://www.cgctool.com/calculator> for all speeds and feeds calculations.

## 5 Flute



## 5 Flute Flat End

Patented variable flute and index design which reduces chatter and vibration. Recommended for aggressive machining applications in all materials including: stainless, inconel, titanium, tool steels, and hardened materials. Should be run at specific parameters. See "Speeds and Feeds" chart. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

Based on the original 5 flute Gorilla Mill, the "Phenom" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials such as:

- Inconel
- Waspalloy
- Hastelloy
- Rene
- Stellite
- 17-4 SS
- 15-5 SS
- 13-8 SS
- Titanium

**Gorilla Mill®:** Variable helix/index design allows higher material removal rates, superior finish, and lower heat generation for improved wear resistance.

**GMS<sup>2</sup> Nano-Composite Coating:** Extremely hard and extremely wear- and heat-resistant to over 2010°F.

**Design Benefits:** To crush, mame, and otherwise bully High Temp Alloys into submission.

### STANDARD FLAT END - 5 FLUTE GMS<sup>2</sup> COATED

D1	D2	LOC	OAL	ITEM #
1/4	1/4	3/4	2-1/2	GMHT14F5
5/16	5/16	7/8	2-1/2	GMHT516F5
3/8	3/8	7/8	2-1/2	GMHT38F5
1/2	1/2	1	3	GMHT12FH5
1/2	1/2	1-1/4	3	GMHT12F5
7/16	7/16	1	2-1/2	GMHT716F5
5/8	5/8	1-1/4	3-1/2	GMHT58F5
3/4	3/4	1-1/2	4	GMHT34F5
1	1	1-1/2	4	GMHT10F5

### STUB FLAT END - 5 FLUTE GMS<sup>2</sup> COATED

D1	D2	LOC	OAL	ITEM #
1/4	1/4	1/2	2-1/2	GMHT14FS5
5/16	5/16	1/2	2-1/2	GMHT516FS5
3/8	3/8	5/8	2-1/2	GMHT38FS5
7/16	7/16	5/8	2-1/2	GMHT716FS5
1/2	1/2	5/8	3	GMHT12FS5
5/8	5/8	3/4	3-1/2	GMHT58FS5
3/4	3/4	1	4	GMHT34FS5
1	1	1	4	GMHT10FS5

#### TOLERANCES

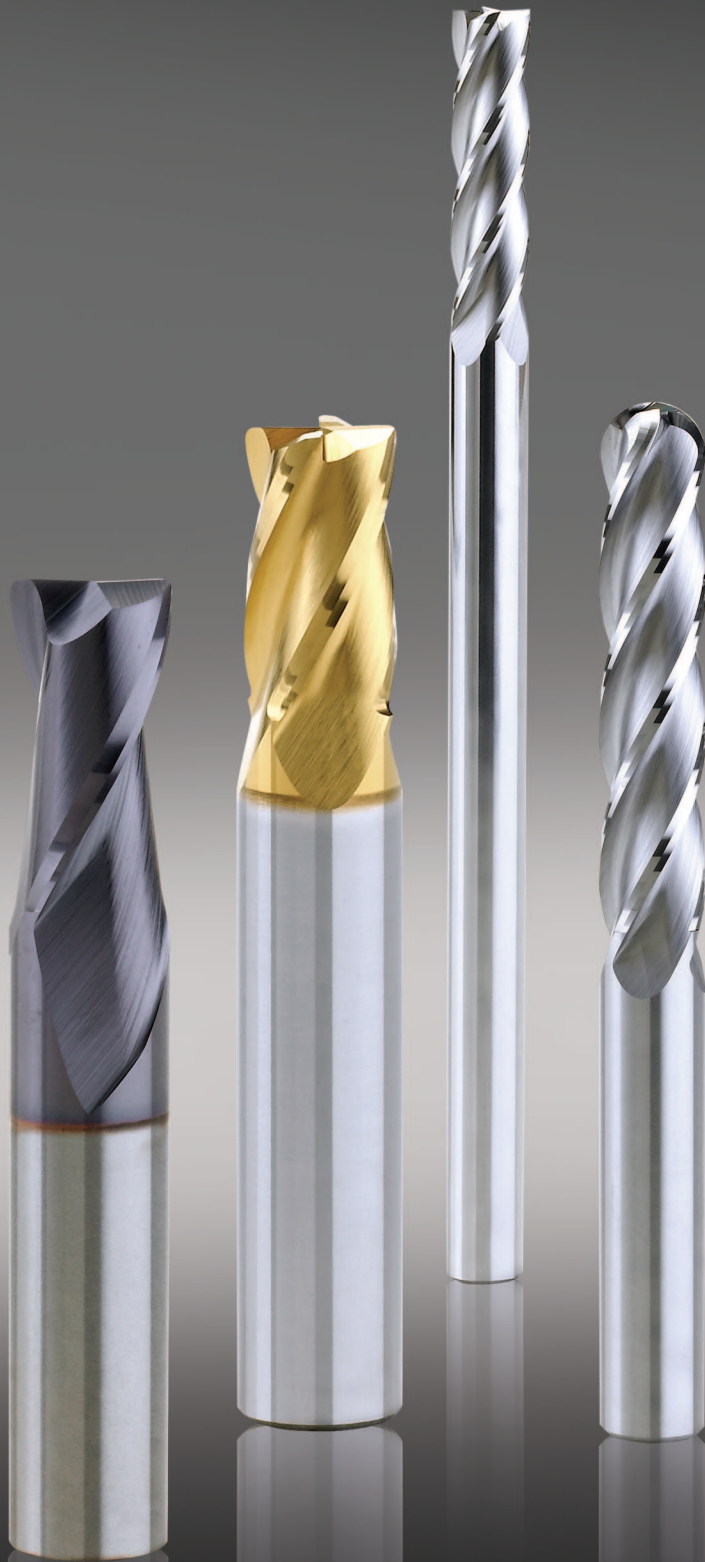
Cut Dia +.000/- .002

Shank Dia -.0001/- .0005

LOC +.025/+ .050

OAL +/- .050

Radius +/- .002



CARBIDE END MILLS

## Carbide End Mills



### RECOMMENDED RPM AND FEED RATES FOR COATED STANDARD 4 FLUTE CARBIDE END MILLS

Work Piece Material	SFM	1/8"		1/4"		5/16"		3/8"		7/16"		1/2"		5/8"		3/4"		1"	
		RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Gray Cast Iron	300	9168	29.3	4584	20.1	3667	29.3	3056	30.5	2619	28.2	2292	27.5	1833	25.6	1528	24.4	1146	20.6
Soft Steels (>25 Rc)	225	6876	19.2	3438	13.8	2750	13.2	2292	12.8	1964	12.5	1719	12.3	1375	12.1	1146	13.7	860	12.0
Alloy Steels (4140 )	140	4278	6.8	2139	6.8	1711	6.8	1426	6.8	1222	6.4	1069	6.4	855	6.8	713	7.1	535	6.4
Tool Steels(A2,D2)	125	3820	6.1	1910	6.1	1528	6.1	1273	6.1	1091	5.6	955	5.7	764	6.1	637	6.3	477	5.7
Die Steels (H13,P20)	125	3820	6.1	1910	6.1	1528	6.1	1273	6.1	1091	5.6	955	5.7	764	6.1	637	6.3	477	5.7
Stainless Steel (303)	175	5348	10.6	2674	9.6	2139	12.8	1782	12.8	1528	11.6	1337	10.6	1070	10.7	891	10.7	668	9.3
Difficult Stainless Steel	100	3056	6.1	1528	4.9	1222	4.9	1018	5.3	873	4.8	764	4.5	611	4.9	509	5.1	382	4.6
High Temp. Alloys	80	2444	3.9	1222	3.4	977	3.5	815	3.9	698	3.6	611	3.4	489	3.5	407	3.7	305	3.6
Titanium	60	1833	4.4	916	3.3	733	3.5	611	3.4	524	3.3	458	3.3	367	3.2	305	3.6	229	3.2

**NOTE: Run UNCOATED endmills 25% less on SFM**

### RECOMMENDED CHIP LOADS PER TOOTH

Work Piece Material	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Gray Cast Iron	0.0008	0.0010	0.0013	0.0020	0.0025	0.0030	0.0035	0.0040	0.0045
Soft Steels (>25 Rc)	0.0006	0.0008	0.0010	0.0012	0.0014	0.0018	0.0022	0.0030	0.0035
Alloy Steels (4140 )	0.0004	0.0006	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030
Tool Steels(A2,D2)	0.0004	0.0006	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030
Die Steels (H13,P20)	0.0004	0.0006	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030
Stainless Steel (303)	0.0005	0.0008	0.0011	0.0015	0.0018	0.0020	0.0025	0.0030	0.0035
Difficult Stainless Steel	0.0005	0.0006	0.0008	0.0010	0.0013	0.0015	0.0020	0.0025	0.0030
High Temp. Alloys	0.0004	0.0006	0.0007	0.0009	0.0012	0.0014	0.0018	0.0023	0.0030
Titanium	0.0006	0.0007	0.0010	0.0012	0.0014	0.0018	0.0022	0.0030	0.0035

# Standard Length Flat End

Available in TiN, TiAlN, and TiCN coatings. Please specify coating after part number.

(Example: CEM12F4TIALN)



2 & 4 Flute



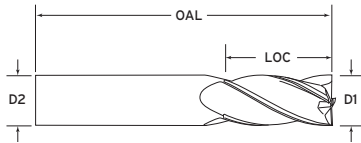
2 & 4 Flute

## 2 and 4 Flute

### 2 and 4 Flute

Extremely versatile in various materials, center cutting, solid sub-micron carbide.

Available in special diameters, lengths and completely resharpenable.



### STANDARD FLAT END - 2 & 4 FLUTE

D1	D2	LOC	OAL	ITEM # (2FL)	ITEM # (4FL)
1/64	1/8	1/32	1-1/2	CEM164F2	CEM164F4
1/32	1/8	5/64	1-1/2	CEM132F2	CEM132F4
3/64	1/8	7/64	1-1/2	CEM364F2	CEM364F4
1/16	1/8	3/16	1-1/2	CEM116F2	CEM116F4
5/64	1/8	3/16	1-1/2	CEM564F2	CEM564F4
3/32	1/8	3/8	1-1/2	CEM332F2	CEM332F4
7/64	1/8	3/8	1-1/2	CEM764F2	CEM764F4
1/8	1/8	1/2	1-1/2	CEM18F2	CEM18F4
9/64	3/16	1/2	2.0	CEM964F2	CEM964F4
5/32	3/16	1/2	2.0	CEM532F2	CEM532F4
11/64	3/16	5/8	2.0	CEM1164F2	CEM1164F4
3/16	3/16	5/8	2.0	CEM316F2	CEM316F4
13/64	1/4	5/8	2-1/2	CEM1364F2	CEM1364F4
7/32	1/4	5/8	2-1/2	CEM732F2	CEM732F4
15/64	1/4	3/4	2-1/2	CEM1564F2	CEM1564F4
1/4	1/4	3/4	2-1/2	CEM14F2	CEM14F4
17/64	5/16	3/4	2-1/2	CEM1764F2	CEM1764F4
9/32	5/16	3/4	2-1/2	CEM932F2	CEM932F4
19/64	5/16	13/16	2-1/2	CEM1964F2	CEM1964F4
5/16	5/16	7/8	2-1/2	CEM516F2	CEM516F4
21/64	3/8	7/8	2-1/2	CEM2164F2	CEM2164F4
23/64	3/8	7/8	2-1/2	CEM2364F2	CEM2364F4
3/8	3/8	7/8	2-1/2	CEM38F2	CEM38F4
25/64	7/16	1.0	2-1/2	CEM2564F2	CEM2564F4
27/64	7/16	1.0	2-1/2	CEM2764F2	CEM2764F4
7/16	7/16	1.0	2-1/2	CEM716F2	CEM716F4
29/64	1/2	1.0	3.0	CEM2964F2	CEM2964F4
31/64	1/2	1.0	3.0	CEM3164F2	CEM3164F4
1/2	1/2	1.0	3.0	CEM12F2	CEM12F4
33/64	9/16	1-1/8	3-1/2	CEM3364F2	CEM3364F4
35/64	9/16	1-1/8	3-1/2	CEM3564F2	CEM3564F4
9/16	9/16	1-1/4	3-1/2	CEM916F2	CEM916F4
5/8	5/8	1-1/4	3-1/2	CEM58F2	CEM58F4
3/4	3/4	1-1/2	4.0	CEM34F2	CEM34F4
1.0	1.0	1-1/2	4.0	CEM10F2	CEM10F4



#### TOLERANCES

Cut Dia +.000/- .002

Shank Dia -.0001/- .0005

LOC +.025/+ .050

OAL +/- .050



2 & 4 Flute



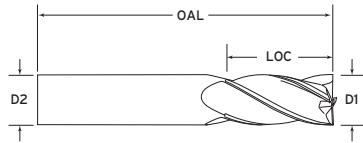
2 & 4 Flute

## 2 and 4 Flute

### 2 and 4 Flute

Extremely versatile in various materials, center cutting, stronger corners, radius parts, solid sub-micron carbide.

**Available in special diameters, lengths and completely resharpenable.**



### STANDARD LENGTH RADIUS END - 2 & 4 FLUTE

D1	D2	LOC	OAL	CORNER RADIUS	ITEM # (2FL)	ITEM # (4FL)
1/16	1/8	1/4	1-1/2	0.010	CEM116R2010	CEM116R4010
1/16	1/8	1/4	1-1/2	0.015	CEM116R2015	CEM116R4015
3/32	1/8	3/8	1-1/2	0.010	CEM332R2010	CEM332R4010
3/32	1/8	3/8	1-1/2	0.015	CEM332R2015	CEM332R4015
3/32	1/8	3/8	1-1/2	0.020	CEM332R2020	CEM332R4020
1/8	1/8	1/2	1-1/2	0.010	CEM18R2010	CEM18R4010
1/8	1/8	1/2	1-1/2	0.015	CEM18R2015	CEM18R4015
1/8	1/8	1/2	1-1/2	0.020	CEM18R2020	CEM18R4020
1/8	1/8	1/2	1-1/2	0.030	CEM18R2030	CEM18R4030
3/16	3/16	5/8	2.0	0.010	CEM316R2010	CEM316R4010
3/16	3/16	5/8	2.0	0.015	CEM316R2015	CEM316R4015
3/16	3/16	5/8	2.0	0.020	CEM316R2020	CEM316R4020
3/16	3/16	5/8	2.0	0.030	CEM316R2030	CEM316R4030
1/4	1/4	3/4	2-1/2	0.015	CEM14R2015	CEM14R4015
1/4	1/4	3/4	2-1/2	0.020	CEM14R2020	CEM14R4020
1/4	1/4	3/4	2-1/2	0.030	CEM14R2030	CEM14R4030
1/4	1/4	3/4	2-1/2	0.045	CEM14R2045	CEM14R4045
1/4	1/4	3/4	2-1/2	0.060	CEM14R2060	CEM14R4060
5/16	5/16	7/8	2-1/2	0.015	CEM516R2015	CEM516R4015
5/16	5/16	7/8	2-1/2	0.020	CEM516R2020	CEM516R4020
5/16	5/16	7/8	2-1/2	0.030	CEM516R2030	CEM516R4030
5/16	5/16	7/8	2-1/2	0.045	CEM516R2045	CEM516R4045
5/16	5/16	7/8	2-1/2	0.060	CEM516R2060	CEM516R4060
3/8	3/8	7/8	2-1/2	0.015	CEM38R2015	CEM38R4015
3/8	3/8	7/8	2-1/2	0.020	CEM38R2020	CEM38R4020
3/8	3/8	7/8	2-1/2	0.030	CEM38R2030	CEM38R4030
3/8	3/8	7/8	2-1/2	0.045	CEM38R2045	CEM38R4045
3/8	3/8	7/8	2-1/2	0.060	CEM38R2060	CEM38R4060

#### TOLERANCES

Cut Dia +.000/- .002

Shank Dia -.0001/- .0005

LOC +.025/+ .050

OAL +/- .050

Radius +/- .002



# Standard Length Radius End continued

Available in TiN, TiAlN, and TiCN coatings. Please specify coating after part number.

(Example: CEM12F4TIALN)



2 & 4 Flute



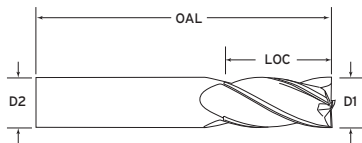
2 & 4 Flute

## 2 and 4 Flute

### 2 and 4 Flute

Extremely versatile in various materials, center cutting, stronger corners, radius parts, solid sub-micron carbide.

Available in special diameters, lengths and completely resharpenable.



### STANDARD LENGTH RADIUS END - 2 & 4 FLUTE

D1	D2	LOC	OAL	CORNER RADIUS	ITEM # (2FL)	ITEM # (4FL)
1/2	1/2	1.0	3.0	0.015	CEM12R2015	CEM12R4015
1/2	1/2	1.0	3.0	0.020	CEM12R2020	CEM12R4020
1/2	1/2	1.0	3.0	0.030	CEM12R2030	CEM12R4030
1/2	1/2	1.0	3.0	0.045	CEM12R2045	CEM12R4045
1/2	1/2	1.0	3.0	0.060	CEM12R2060	CEM12R4060
1/2	1/2	1.0	3.0	0.090	CEM12R2090	CEM12R4090
1/2	1/2	1.0	3.0	0.125	CEM12R2125	CEM12R4125
5/8	5/8	1-1/4	3-1/2	0.015	CEM58R2015	CEM58R4015
5/8	5/8	1-1/4	3-1/2	0.020	CEM58R2020	CEM58R4020
5/8	5/8	1-1/4	3-1/2	0.030	CEM58R2030	CEM58R4030
5/8	5/8	1-1/4	3-1/2	0.045	CEM58R2045	CEM58R4045
5/8	5/8	1-1/4	3-1/2	0.060	CEM58R2060	CEM58R4060
5/8	5/8	1-1/4	3-1/2	0.090	CEM58R2090	CEM58R4090
3/4	3/4	1-1/2	4.0	0.015	CEM34R2015	CEM34R4015
3/4	3/4	1-1/2	4.0	0.020	CEM34R2020	CEM34R4020
3/4	3/4	1-1/2	4.0	0.030	CEM34R2030	CEM34R4030
3/4	3/4	1-1/2	4.0	0.045	CEM34R2045	CEM34R4045
3/4	3/4	1-1/2	4.0	0.060	CEM34R2060	CEM34R4060
3/4	3/4	1-1/2	4.0	0.090	CEM34R2090	CEM34R4090
3/4	3/4	1-1/2	4.0	0.125	CEM34R2125	CEM34R4125
1.0	1.0	1-1/2	4.0	0.015	CEM10R2015	CEM10R4015
1.0	1.0	1-1/2	4.0	0.020	CEM10R2020	CEM10R4020
1.0	1.0	1-1/2	4.0	0.030	CEM10R2030	CEM10R4030
1.0	1.0	1-1/2	4.0	0.045	CEM10R2045	CEM10R4045
1.0	1.0	1-1/2	4.0	0.060	CEM10R2060	CEM10R4060
1.0	1.0	1-1/2	4.0	0.090	CEM10R2090	CEM10R4090
1.0	1.0	1-1/2	4.0	0.125	CEM10R2125	CEM10R4125



#### TOLERANCES

Cut Dia +.000/- .002

Shank Dia -.0001/- .0005

LOC +.025/+ .050

OAL +/- .050

CARBIDE END MILLS

# Standard Length Ball Nose

Available in TiN, TiAlN, and TiCN coatings. Please specify coating after part number.

(Example: CEM12F4TIALN)



2 & 4 Flute



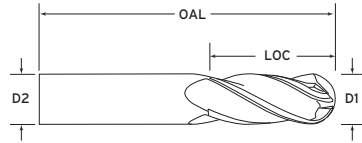
2 & 4 Flute

## 2 and 4 Flute

### 2 and 4 Flute

Extremely versatile in various materials, center cutting, solid sub-micron carbide.

Available in special diameters, lengths and completely resharpenable.



### STANDARD BALLNOSE - 2 & 4 FLUTE

D1	D2	LOC	OAL	ITEM # (2FL)	ITEM # (4FL)
1/64	1/8	1/32	1-1/2	CEM164B2	CEM164B4
1/32	1/8	5/64	1-1/2	CEM132B2	CEM132B4
3/64	1/8	7/64	1-1/2	CEM364B2	CEM364B4
1/16	1/8	1/8	1-1/2	CEM116B2	CEM116B4
5/64	1/8	3/16	1-1/2	CEM564B2	CEM564B4
3/32	1/8	3/8	1-1/2	CEM332B2	CEM332B4
7/64	1/8	3/8	1-1/2	CEM764B2	CEM764B4
1/8	1/8	1/2	1-1/2	CEM18B2	CEM18B4
9/64	3/16	1/2	2.0	CEM964B2	CEM964B4
5/32	3/16	1/2	2.0	CEM532B2	CEM532B4
11/64	3/16	5/8	2.0	CEM1164B2	CEM1164B4
3/16	3/16	5/8	2.0	CEM316B2	CEM316B4
13/64	1/4	5/8	2-1/2	CEM1364B2	CEM1364B4
7/32	1/4	5/8	2-1/2	CEM732B2	CEM732B4
15/64	1/4	3/4	2-1/2	CEM1564B2	CEM1564B4
1/4	1/4	3/4	2-1/2	CEM14B2	CEM14B4
17/64	5/16	3/4	2-1/2	CEM1764B2	CEM1764B4
9/32	5/16	3/4	2-1/2	CEM932B2	CEM932B4
19/64	5/16	13/16	2-1/2	CEM1964B2	CEM1964B4
5/16	5/16	7/8	2-1/2	CEM516B2	CEM516B4
21/64	3/8	7/8	2-1/2	CEM2164B2	CEM2164B4
23/64	3/8	7/8	2-1/2	CEM2364B2	CEM2364B4
3/8	3/8	7/8	2-1/2	CEM38B2	CEM38B4
25/64	7/16	1.0	2-1/2	CEM2564B2	CEM2564B4
27/64	7/16	1.0	2-1/2	CEM2764B2	CEM2764B4
7/16	7/16	1.0	2-1/2	CEM716B2	CEM716B4
29/64	1/2	1.0	3.0	CEM2964B2	CEM2964B4
31/64	1/2	1.0	3.0	CEM3164B2	CEM3164B4
1/2	1/2	1.0	3.0	CEM12B2	CEM12B4
33/64	9/16	1-1/8	3-1/2	CEM3364B2	CEM3364B4
35/64	9/16	1-1/8	3-1/2	CEM3564B2	CEM3564B4
9/16	9/16	1-1/4	3-1/2	CEM916B2	CEM916B4
5/8	5/8	1-1/4	3-1/2	CEM58B2	CEM58B4
3/4	3/4	1-1/2	4.0	CEM34B2	CEM34B4
1.0	1.0	1-1/2	4.0	CEM10B2	CEM10B4

#### TOLERANCES

Cut Dia +.000/- .002

Shank Dia -.0001/- .0005

LOC +.025/+ .050

OAL +/- .050

Radius +/- .002





Available in TiN, TiAlN, and TiCN coatings. Please specify coating after part number.

(Example: CEM12F4TIALN)



2 & 4 Flute



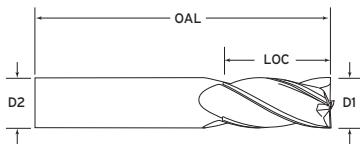
2 & 4 Flute

2 and 4 Flute

**2 and 4 Flute**

Extremely versatile in various materials, extended reach or deep wall profiling, center cutting, solid sub-micron carbide.

Available in special diameters, lengths and completely resharpenable.



**LONG | X-LONG | SUPER LONG FLAT END - 2 & 4 FLUTE**

D1	D2	LOC	OAL	ITEM # (2FL)	ITEM # (4FL)
1/8	1/8	3/4	2-1/2	CEM18FL2	CEM18FL4
1/8	1/8	1.0	3.0	CEM18FXL2	CEM18FXL4
3/16	3/16	1-1/8	3.0	CEM316FXL2	CEM316FXL4
3/16	3/16	1-1/8	4.0	CEM316FSL2	CEM316FSL4
1/4	1/4	1-1/8	3.0	CEM14FL2	CEM14FL4
1/4	1/4	1-1/2	4.0	CEM14FXL2	CEM14FXL4
1/4	1/4	1-1/2	6.0	CEM14FXXL2	CEM14FXXL4
5/16	5/16	1-1/8	3.0	CEM516FL2	CEM516FL4
5/16	5/16	1-5/8	4.0	CEM516FXL2	CEM516FXL4
3/8	3/8	1-1/8	3.0	CEM38FL2	CEM38FL4
3/8	3/8	2.0	4.0	CEM38FXL2	CEM38FXL4
3/8	3/8	1-1/2	6.0	CEM38FXXL2	CEM38FXXL4
3/8	3/8	3.0	6.0	CEM38FSL2	CEM38FSL4
1/2	1/2	1-1/2	4.0	CEM12FL2	CEM12FL4
1/2	1/2	2.0	4.0	CEM12FXL2	CEM12FXL4
1/2	1/2	1-1/2	6.0	CEM12FXXL2	CEM12FXXL4
1/2	1/2	3.0	6.0	CEM12FSL2	CEM12FSL4
5/8	5/8	2-1/4	5.0	CEM58FL2	CEM58FL4
5/8	5/8	2.0	6.0	CEM58FXL2	CEM58FXL4
5/8	5/8	3.0	6.0	CEM58FXXL2	CEM58FXXL4
3/4	3/4	2.0	6.0	CEM34FXL2	CEM34FXL4
3/4	3/4	3.0	6.0	CEM34FXXL2	CEM34FXXL4
3/4	3/4	4.0	7.0	CEM34FSL2	CEM34FSL4
1.0	1.0	2.0	6.0	CEM10FXL2	CEM10FXL4
1.0	1.0	3.0	6.0	CEM10FXXL2	CEM10FXXL4
1.0	1.0	4.0	7.0	CEM10FSL2	CEM10FSL4



**TOLERANCES**

Cut Dia +.000/- .002

Shank Dia -.0001/- .0005

LOC +.025/+ .050

OAL +/- .050



2 & 4 Flute



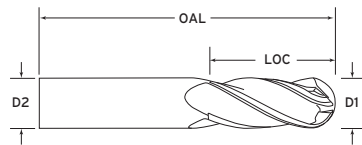
2 & 4 Flute

## 2 and 4 Flute

### 2 and 4 Flute

Extremely versatile in various materials, extended reach or deep wall profiling, center cutting, solid sub-micron carbide.

Available in special diameters, lengths, and completely resharpenable.



### LONG | X-LONG | SUPER LONG BALLNOSE - 2 & 4 FLUTE

D1	D2	LOC	OAL	ITEM # (2FL)	ITEM # (4FL)
1/8	1/8	3/4	2-1/2	CEM18BL2	CEM18BL4
1/8	1/8	1.0	3.0	CEM18BXL2	CEM18BXL4
3/16	3/16	1-1/8	3.0	CEM316BL2	CEM316BL4
3/16	3/16	1-1/8	4.0	CEM316BXL2	CEM316BXL4
1/4	1/4	1-1/8	3.0	CEM14BL2	CEM14BL4
1/4	1/4	1-1/2	4.0	CEM14BXL2	CEM14BXL4
1/4	1/4	1-1/2	6.0	CEM14BXXL2	CEM14BXXL4
5/16	5/16	1-1/8	3.0	CEM516BL2	CEM516BL4
5/16	5/16	1-5/8	4.0	CEM516BXL2	CEM516BXL4
3/8	3/8	1-1/8	3.0	CEM38BL2	CEM38BL4
3/8	3/8	2.0	4.0	CEM38BXL2	CEM38BXL4
3/8	3/8	1-1/2	6.0	CEM38BXXL2	CEM38BXXL4
3/8	3/8	3.0	6.0	CEM38BSL2	CEM38BSL4
1/2	1/2	1-1/2	4.0	CEM12BL2	CEM12BL4
1/2	1/2	2.0	4.0	CEM12BXL2	CEM12BXL4
1/2	1/2	1-1/2	6.0	CEM12BXXL2	CEM12BXXL4
1/2	1/2	3.0	6.0	CEM12BSL2	CEM12BSL4
5/8	5/8	2.0	6.0	CEM58BXL2	CEM58BXL4
5/8	5/8	3.0	6.0	CEM58BXXL2	CEM58BXXL4
3/4	3/4	2.0	6.0	CEM34BXL2	CEM34BXL4
3/4	3/4	3.0	6.0	CEM34BXXL2	CEM34BXXL4
1.0	1.0	2.0	6.0	CEM10BXL2	CEM10BXL4
1.0	1.0	3.0	6.0	CEM10BXXL2	CEM10BXXL4
1.0	1.0	4.0	7.0	CEM10BSL2	CEM10BSL4

#### TOLERANCES

Cut Dia +.000/-0.002

Shank Dia -.0001/-0.0005

LOC +.025/+0.050

OAL +/-0.050

Radius +/-0.002



GORILLA DRILLS

GDX-59 Coated



$SFM\ RPM = (SFM \times 3.82) / \text{Drill Diameter}$

Materials	Examples	Solid 3X	Solid 5X	Coolant Fed 5X	Coolant Fed 7X
Low Carbon Steel	1018	275-325	250-300	450-500	425-475
Alloy Steel (up to 35Rc)	4140	200-250	175-225	250-350	225-300
Alloy Steel (36-45Rc)	4140	120-150	105-135	150-200	135-180
Austenetic Stainless Steel	304/316	100-150	75-125	175-250	150-225
High Temp Alloys	Inconel, Hastelloy, Waspelloy	50-100	40-90	80-120	70-110
Precipitation Hardened Stainless	17-4PH	75-125	50-100	125-175	100-150
Titanium	6AL-4V	125-155	115-145	190-240	175-225
Gray Cast Iron	A48 Class 20/G4000	325-400	275-350	400-500	375-475
Ductile Cast Iron	A536/60-40-18	250-300	225-275	450-500	425-475

$IPR\ (\text{Feed rate})\ IPM = RPM \times IPR$

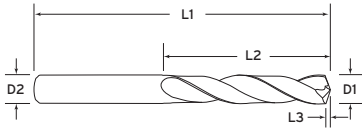
Materials	Examples	1/32"	1/16"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"
Low Carbon Steel	1018	0.001	0.001	0.002	0.004	0.006	0.007	0.008	0.009
Alloy Steel (up to 35Rc)	4140	0.001	0.001	0.002	0.004	0.006	0.007	0.008	0.009
Alloy Steel (36-45Rc)	4140	0.0005	0.001	0.001	0.002	0.003	0.004	0.006	0.007
Austenetic Stainless Steel	1	0.001	0.001	0.002	0.004	0.006	0.007	0.008	0.009
High Temp Alloys	Inconel, Hastelloy, Waspelloy	0.0005	0.001	0.001	0.0015	0.003	0.004	0.005	0.008
Precipitation Hardened Stainless	17-4PH	0.0005	0.001	0.001	0.0015	0.003	0.004	0.005	0.008
Titanium	6AL-4V	0.0005	0.001	0.001	0.0015	0.003	0.004	0.005	0.008
Gray Cast Iron	A48 Class 20/G4000	0.001	0.001	0.002	0.004	0.006	0.007	0.008	0.009
Ductile Cast Iron	A536/60-40-18	0.001	0.001	0.002	0.004	0.006	0.007	0.008	0.009



Solid Carbide High Performance

**Solid Short Length 3X**

The Gorilla Drill is a general-purpose high performance and high penetration solid carbide drill capable of machining a vast range of work materials. Gorilla Drills are suitable for high efficiency precision machining. Up to 50% faster than standard carbide drills. Edge prepped for maximum tool life and SFM.



**SOLID SHORT LENGTH DRILLS GDX-59 COATED**

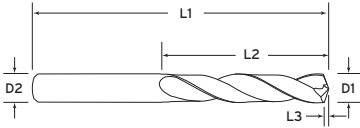
DIAMETER		SHANK	LOF	OAL	POINT LENGTH	
D1	Decimal/Size	D2	L2	L1	L3	Item#
#31	0.1200	1/8	0.7500	2.2500	0.0190	GD1200X3
1/8	0.1250	1/8	0.7500	2.2500	0.0190	GD1250X3
#30	0.1285	5/32	0.8750	2.5000	0.0200	GD1285X3
3.3mm	0.1299	4mm	22mm	63mm	0.51mm	GD1299X3
#29	0.1360	5/32	0.8750	2.5000	0.0210	GD1360X3
9/64	0.1406	5/32	0.8750	2.5000	0.0220	GD1406X3
3.8mm	0.1496	4mm	22mm	63mm	0.59mm	GD1496X3
5/32	0.1562	5/32	0.8750	2.5000	0.0240	GD1562X3
#21	0.1590	3/16	1.0000	2.5000	0.0250	GD1590X3
4.1mm	0.1614	5mm	26mm	63mm	0.64mm	GD1614X3
4.3mm	0.1693	5mm	26mm	63mm	0.67mm	GD1693X3
11/64	0.1719	3/16	1.0000	2.5000	0.0270	GD1719X3
4.4mm	0.1732	5mm	26mm	63mm	0.68mm	GD1732X3
3/16	0.1875	3/16	1.0000	2.5000	0.0290	GD1875X3
4.9mm	0.1929	5mm	26mm	63mm	0.76mm	GD1929X3
5mm	0.1968	5mm	26mm	63mm	0.77mm	GD1968X3
13/64	0.2031	15/64	1.1250	3.0000	0.0310	GD2031X3
5.3mm	0.2087	6mm	30mm	76mm	0.82mm	GD2087X3
5.5mm	0.2165	6mm	30mm	76mm	0.85mm	GD2165X3
7/32	0.2187	15/64	1.1250	3.0000	0.0340	GD2187X3
#2	0.2210	15/64	1.1250	3.0000	0.0340	GD2210X3
5.7mm	0.2244	6mm	30mm	76mm	0.88mm	GD2244X3
5.8mm	0.2283	6mm	30mm	76mm	0.90mm	GD2283X3
15/64	0.2344	15/64	1.1250	3.0000	0.0360	GD2344X3
6mm	0.2362	6mm	30mm	76mm	0.93mm	GD2362X3
6.2mm	0.2441	8mm	35mm	82mm	0.96mm	GD2441X3
1/4	0.2500	1/4	1.2500	3.0000	0.0390	GD2500X3
F	0.2570	5/16	1.3750	3.2500	0.0400	GD2570X3
17/64	0.2656	5/16	1.3750	3.2500	0.0410	GD2656X3
7mm	0.2756	8mm	35mm	82mm	1.08mm	GD2756X3
9/32	0.2812	5/16	1.5000	3.2500	0.0440	GD2812X3
19/64	0.2969	5/16	1.5000	3.2500	0.0460	GD2969X3



## Solid Carbide High Performance

### Solid Short Length 3X

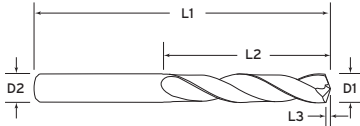
The Gorilla Drill is a general-purpose high performance and high penetration solid carbide drill capable of machining a vast range of work materials. Gorilla Drills are suitable for high efficiency precision machining. Up to 50% faster than standard carbide drills. Edge prepped for maximum tool life and SFM.



### SOLID SHORT LENGTH DRILLS GDX-59 COATED

DIAMETER		SHANK	LOF	OAL	POINT LENGTH	
D1	Decimal/Size	D2	L2	L1	L3	Item#
5/16	0.3125	5/16	1.5000	3.2500	0.0480	GD3125X3
8mm	0.3150	8mm	38mm	82mm	1.24mm	GD3150X3
21/64	0.3281	25/64	1.6870	3.5000	0.0510	GD3281X3
8.5mm	0.3346	10mm	43mm	89mm	1.32mm	GD3346X3
11/32	0.3438	25/64	1.6870	3.5000	0.0530	GD3438X3
9mm	0.3543	10mm	43mm	89mm	1.39mm	GD3543X3
23/64	0.3594	25/64	1.6870	3.5000	0.0560	GD3594X3
9.25mm	0.3642	10mm	43mm	89mm	1.43mm	GD3642X3
3/8	0.3750	25/64	1.6870	3.5000	0.0580	GD3750X3
25/64	0.3906	25/64	1.6870	3.5000	0.0610	GD3906X3
10mm	0.3937	10mm	43mm	89mm	1.55mm	GD3937X3
13/32	0.4062	15/32	2.0000	4.0000	0.0630	GD4062X3
10.5mm	0.4134	12mm	51mm	101mm	1.63mm	GD4134X3
27/64	0.4219	15/32	2.0000	4.0000	0.0650	GD4219X3
11mm	0.4331	12mm	51mm	101mm	1.70mm	GD4331X3
7/16	0.4375	15/32	2.0000	4.0000	0.0680	GD4375X3
11.5mm	0.4527	12mm	51mm	101mm	1.78mm	GD4527X3
15/32	0.4688	15/32	2.0000	4.0000	0.0730	GD4688X3
12mm	0.4724	12mm	51mm	101mm	1.86mm	GD4724X3
31/64	0.4844	1/2	2.0000	4.0000	0.0750	GD4844X3
1/2	0.5000	1/2	2.0000	4.0000	0.0770	GD5000X3
13mm	0.5118	14mm	54mm	107mm	2.01mm	GD5118X3
33/64	0.5156	35/64	2.1250	4.2500	0.0800	GD5156X3
17/32	0.5312	35/64	2.1250	4.2500	0.0820	GD5312X3
35/64	0.5469	35/64	2.1250	4.2500	0.0850	GD5469X3
9/16	0.5625	5/8	2.3750	4.6250	0.0870	GD5625X3
19/32	0.5938	5/8	2.3750	4.6250	0.0920	GD5938X3
5/8	0.6250	5/8	2.3750	4.6250	0.0970	GD6250X3
16mm	0.6299	16mm	60mm	117mm	2.48mm	GD6299X3
21/32	0.6562	45/64	2.5000	4.8100	0.1020	GD6562X3
11/16	0.6875	45/64	2.5000	4.8100	0.1070	GD6875X3
3/4	0.7500	3/4	2.7500	5.2500	0.1160	GD7500X3
20mm	0.7874	20mm	70mm	133mm	3.10mm	GD7874X3

Solid Carbide High Performance



**Solid Regular Length 5X**

The Gorilla Drill is a general-purpose high performance and high penetration solid carbide drill capable of machining a vast range of work materials. Gorilla Drills are suitable for high efficiency precision machining. Up to 50% faster than standard carbide drills. Edge prepped for maximum tool life and SFM.

**SOLID REGULAR LENGTH DRILLS GDX-59 COATED**

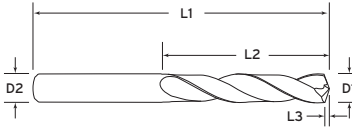
DIAMETER		SHANK	LOF	OAL	POINT LENGTH	
D1	Decimal/Size	D2	L2	L1	L3	Item#
#31	0.1200	1/8	1.1250	2.5000	0.0190	GD1200X5
1/8	0.1250	1/8	1.1250	2.5000	0.0190	GD1250X5
#30	0.1285	5/32	1.2600	2.7500	0.0200	GD1285X5
#29	0.1360	5/32	1.2600	2.7500	0.0210	GD1360X5
9/64	0.1406	5/32	1.2600	2.7500	0.0220	GD1406X5
5/32	0.1562	5/32	1.2600	2.7500	0.0240	GD1562X5
#21	0.1590	3/16	1.5000	3.1500	0.0250	GD1590X5
11/64	0.1719	3/16	1.5000	3.1500	0.0270	GD1719X5
3/16	0.1875	3/16	1.5000	3.1500	0.0290	GD1875X5
5mm	0.1968	5mm	38mm	80mm	0.77mm	GD1968X5
13/64	0.2031	15/64	1.5800	3.2300	0.0310	GD2031X5
5.3mm	0.2087	6mm	40mm	82mm	0.82mm	GD2087X5
7/32	0.2187	15/64	1.5800	3.2300	0.0340	GD2187X5
#2	0.2210	15/64	1.5800	3.2300	0.0340	GD2210X5
15/64	0.2344	15/64	1.5800	3.2300	0.0360	GD2344X5
6mm	0.2362	6mm	40mm	82mm	0.93mm	GD2362X5
6.2mm	0.2441	8mm	48mm	91mm	0.96mm	GD2441X5
1/4	0.2500	1/4	1.7400	3.2500	0.0390	GD2500X5
F	0.2570	5/16	1.8900	3.5800	0.0400	GD2570X5
17/64	0.2656	5/16	1.8900	3.5800	0.0410	GD2656X5
7mm	0.2756	8mm	48mm	91mm	1.08mm	GD2756X5
9/32	0.2812	5/16	1.8900	3.5800	0.0440	GD2812X5
19/64	0.2969	5/16	1.8900	3.5800	0.0460	GD2969X5
5/16	0.3125	5/16	1.8900	3.5800	0.0480	GD3125X5
8mm	0.3150	8mm	48mm	91mm	1.24mm	GD3150X5
21/64	0.3281	25/64	2.1700	4.0600	0.0510	GD3281X5
8.5mm	0.3346	10mm	55mm	103mm	1.32mm	GD3346X5
11/32	0.3438	25/64	2.1700	4.0600	0.0530	GD3438X5
9mm	0.3543	10mm	55mm	103mm	1.39mm	GD3543X5
23/64	0.3594	25/64	2.1700	4.0600	0.0560	GD3594X5
9.25mm	0.3642	10mm	55mm	103mm	1.43mm	GD3642X5
3/8	0.3750	25/64	2.1700	4.0600	0.0580	GD3750X5



## Solid Carbide High Performance

### Solid Regular Length 5X

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### SOLID REGULAR LENGTH DRILLS GDX-59 COATED

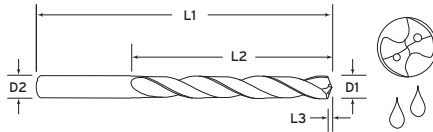
DIAMETER		SHANK	LOF	OAL	POINT LENGTH	
D1	Decimal/Size	D2	L2	L1	L3	Item#
9.6mm	0.3780	10mm	55mm	103mm	1.49mm	GD3780X5
25/64	0.3906	25/64	2.1700	4.0600	0.0610	GD3906X5
10mm	0.3937	10mm	55mm	103mm	1.55mm	GD3937X5
13/32	0.4062	15/32	2.3600	4.7200	0.0630	GD4062X5
10.5mm	0.4134	12mm	60mm	120mm	1.63mm	GD4134X5
27/64	0.4219	15/32	2.3600	4.7200	0.0650	GD4219X5
11mm	0.4331	12mm	60mm	120mm	1.70mm	GD4331X5
7/16	0.4375	15/32	2.6000	4.7200	0.0680	GD4375X5
11.5mm	0.4527	12mm	66mm	120mm	1.78mm	GD4527X5
15/32	0.4688	15/32	2.6000	4.7200	0.0730	GD4688X5
12mm	0.4724	12mm	66mm	120mm	1.86mm	GD4724X5
31/64	0.4844	1/2	2.8300	4.7500	0.0750	GD4844X5
1/2	0.5000	1/2	2.8300	4.7500	0.0770	GD5000X5
13mm	0.5118	14mm	72mm	126mm	2.01mm	GD5118X5
33/64	0.5156	35/64	3.0300	5.2800	0.0800	GD5156X5
17/32	0.5312	35/64	3.0300	5.2800	0.0820	GD5312X5
35/64	0.5469	35/64	3.0300	5.2800	0.0850	GD5469X5
9/16	0.5625	5/8	3.1500	5.5100	0.0870	GD5625X5
19/32	0.5938	5/8	3.2300	5.7500	0.0920	GD5938X5
5/8	0.6250	5/8	3.2300	5.7500	0.0970	GD6250X5
16mm	0.6299	16mm	82mm	146mm	2.48mm	GD6299X5



## Coolant Fed Carbide High Performance

## Coolant Regular Length 5X

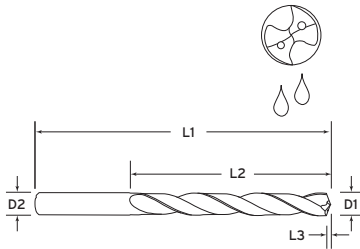
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## COOLANT REGULAR LENGTH DRILLS GDX-59 COATED

DIAMETER		SHANK	LOF	OAL	POINT LENGTH	
D1	Decimal/Size	D2	L2	L1	L3	Item#
#31	0.1200	1/8	1.1250	3.0000	0.0190	GDC1200X5
1/8	0.1250	1/8	1.1250	3.0000	0.0190	GDC1250X5
#30	0.1285	5/32	1.2600	3.1500	0.0200	GDC1285X5
#29	0.1360	5/32	1.2600	3.1500	0.0210	GDC1360X5
9/64	0.1406	5/32	1.2600	3.1500	0.0220	GDC1406X5
3.9mm	0.1535	4mm	32mm	80mm	0.60mm	GDC1535X5
5/32	0.1562	5/32	1.2600	3.1500	0.0240	GDC1562X5
#21	0.1590	3/16	1.5000	3.2300	0.0250	GDC1590X5
4.3mm	0.1693	5mm	38mm	82mm	0.67mm	GDC1693X5
11/64	0.1719	3/16	1.5000	3.2300	0.0270	GDC1719X5
3/16	0.1875	3/16	1.5000	3.2300	0.0290	GDC1875X5
5mm	0.1968	5mm	38mm	82mm	0.77mm	GDC1968X5
13/64	0.2031	15/64	1.5800	3.2300	0.0310	GDC2031X5
5.3mm	0.2087	6mm	40mm	82mm	0.82mm	GDC2087X5
7/32	0.2187	15/64	1.5800	3.2300	0.0340	GDC2187X5
#2	0.2210	15/64	1.5800	3.2300	0.0340	GDC2210X5
15/64	0.2344	15/64	1.5800	3.2300	0.0360	GDC2344X5
6mm	0.2362	6mm	40mm	82mm	0.93mm	GDC2362X5
6.2mm	0.2441	8mm	48mm	91mm	0.96mm	GDC2441X5
1/4	0.2500	1/4	1.7400	3.3000	0.0390	GDC2500X5
F	0.2570	5/16	1.8900	3.5800	0.0400	GDC2570X5
17/64	0.2656	5/16	1.8900	3.5800	0.0410	GDC2656X5
7mm	0.2756	8mm	48mm	91mm	1.08mm	GDC2756X5
9/32	0.2812	5/16	1.8900	3.5800	0.0440	GDC2812X5
19/64	0.2969	5/16	1.8900	3.5800	0.0460	GDC2969X5
5/16	0.3125	5/16	1.8900	3.5800	0.0480	GDC3125X5
8mm	0.3150	8mm	48mm	91mm	1.24mm	GDC3150X5
21/64	0.3281	25/64	2.1700	4.0600	0.0510	GDC3281X5
8.5mm	0.3346	10mm	55mm	103mm	1.32mm	GDC3346X5
11/32	0.3438	25/64	2.1700	4.0600	0.0530	GDC3438X5
9mm	0.3543	10mm	55mm	103mm	1.39mm	GDC3543X5
23/64	0.3594	25/64	2.1700	4.0600	0.0560	GDC3594X5
9.25mm	0.3642	10mm	55mm	103mm	1.43mm	GDC3642X5

## Coolant Fed Carbide High Performance



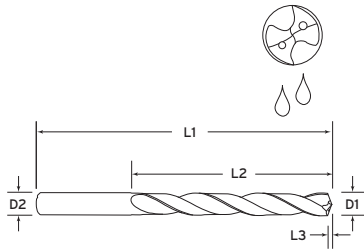
### Coolant Regular Length 5X

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### COOLANT REGULAR LENGTH DRILLS GDX-59 COATED

DIAMETER		SHANK	LOF	OAL	POINT LENGTH	
D1	Decimal/Size	D2	L2	L1	L3	Item#
3/8	0.3750	25/64	2.1700	4.0600	0.0580	GDC3750X5
25/64	0.3906	25/64	2.1700	4.0600	0.0610	GDC3906X5
10mm	0.3937	10mm	55mm	103mm	1.55mm	GDC3937X5
13/32	0.4062	15/32	2.3600	4.7200	0.0630	GDC4062X5
10.5mm	0.4134	12mm	60mm	120mm	1.63mm	GDC4134X5
27/64	0.4219	15/32	2.3600	4.7200	0.0650	GDC4219X5
11mm	0.4331	12mm	60mm	120mm	1.70mm	GDC4331X5
7/16	0.4375	15/32	2.6000	4.7200	0.0680	GDC4375X5
11.5mm	0.4527	12mm	66mm	120mm	1.78mm	GDC4527X5
15/32	0.4688	15/32	2.6000	4.7200	0.0730	GDC4688X5
12mm	0.4724	12mm	66mm	120mm	1.86mm	GDC4724X5
31/64	0.4844	1/2	2.8300	4.7500	0.0750	GDC4844X5
1/2	0.5000	1/2	2.8300	4.7500	0.0770	GDC5000X5
13mm	0.5118	14mm	72mm	126mm	2.01mm	GDC5118X5
33/64	0.5156	35/64	3.0300	5.2800	0.0800	GDC5156X5
17/32	0.5312	35/64	3.0300	5.2800	0.0820	GDC5312X5
35/64	0.5469	35/64	3.0300	5.2800	0.0850	GDC5469X5
9/16	0.5625	5/8	3.1500	5.5100	0.0870	GDC5625X5
19/32	0.5938	5/8	3.2300	5.7500	0.0920	GDC5938X5
5/8	0.6250	5/8	3.2300	5.7500	0.0970	GDC6250X5
16mm	0.6299	16mm	82mm	146mm	2.48mm	GDC6299X5
21/32	0.6562	45/64	3.5400	6.2200	0.1020	GDC6562X5
11/16	0.6875	45/64	3.7400	6.2200	0.1070	GDC6875X5
3/4	0.7500	3/4	3.9400	6.3000	0.1160	GDC7500X5
20mm	0.7874	20mm	100mm	160mm	3.10mm	GDC7874X5

## Coolant Fed Carbide High Performance

**Coolant Long Length 7X**

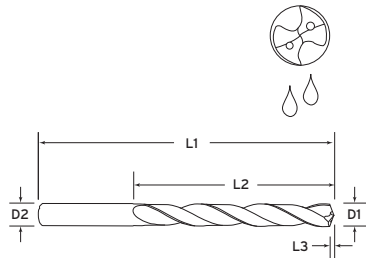
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**COOLANT LONG LENGTH DRILLS GDX-59 COATED**

DIAMETER		SHANK	LOF	OAL	POINT LENGTH	
D1	Decimal/Size	D2	L2	L1	L3	Item#
#31	0.1200	1/8	1.5000	3.5000	0.0190	GDC1200X7
1/8	0.1250	1/8	1.5000	3.5000	0.0190	GDC1250X7
#30	0.1285	5/32	1.7500	3.6250	0.0200	GDC1285X7
#29	0.1360	5/32	1.7500	3.6250	0.0210	GDC1360X7
9/64	0.1406	5/32	1.7500	3.6250	0.0220	GDC1406X7
5/32	0.1562	5/32	1.7500	3.6250	0.0270	GDC1562X7
4mm	0.1575	4mm	44mm	92mm	0.62mm	GDC1575X7
#21	0.1590	3/16	1.7500	3.9400	0.0250	GDC1590X7
11/64	0.1719	3/16	1.7500	3.9400	0.0270	GDC1719X7
3/16	0.1875	3/16	1.7500	3.9400	0.0290	GDC1875X7
5mm	0.1968	5mm	45mm	100mm	0.77mm	GDC1968X7
13/64	0.2031	15/64	2.0000	3.9400	0.0310	GDC2031X7
7/32	0.2187	15/64	2.0000	3.9400	0.0340	GDC2187X7
#2	0.2210	15/64	2.0000	3.9400	0.0340	GDC2210X7
15/64	0.2344	15/64	2.0000	3.9400	0.0360	GDC2344X7
6mm	0.2362	6mm	51mm	100mm	0.93mm	GDC2362X7
6.2mm	0.2441	8mm	60mm	109mm	0.96mm	GDC2441X7
1/4	0.2500	1/4	2.2500	4.3100	0.0390	GDC2500X7
F	0.2570	5/16	2.3750	4.3100	0.0400	GDC2570X7
17/64	0.2656	5/16	2.3750	4.3100	0.0410	GDC2656X7
7mm	0.2756	8mm	60mm	109mm	1.08mm	GDC2756X7
9/32	0.2812	5/16	2.7500	4.6250	0.0440	GDC2812X7
19/64	0.2969	5/16	2.7500	4.6250	0.0460	GDC2969X7
5/16	0.3125	5/16	2.7500	4.6250	0.0480	GDC3125X7
8mm	0.3150	8mm	70mm	118mm	1.24mm	GDC3150X7
21/64	0.3281	25/64	3.1500	5.0000	0.0510	GDC3281X7
8.5mm	0.3346	10mm	80mm	127mm	1.32mm	GDC3346X7
11/32	0.3438	25/64	3.1500	5.0000	0.0530	GDC3438X7
9mm	0.3543	10mm	80mm	127mm	1.39mm	GDC3543X7
23/64	0.3594	25/64	3.3400	5.3120	0.0560	GDC3594X7



Coolant Fed Carbide High Performance



**Coolant Long Length 7X**

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**COOLANT LONG LENGTH DRILLS GDX-59 COATED**

DIAMETER		SHANK	LOF	OAL	POINT LENGTH	
D1	Decimal/Size	D2	L2	L1	L3	Item#
9.25mm	0.3642	10mm	85mm	136mm	1.43mm	GDC3642X7
3/8	0.3750	25/64	3.3400	5.3120	0.0580	GDC3750X7
25/64	0.3906	25/64	3.3400	5.3120	0.0610	GDC3906X7
10mm	0.3937	10mm	85mm	136mm	1.55mm	GDC3937X7
13/32	0.4062	15/32	3.6250	5.8750	0.0630	GDC4062X7
10.5mm	0.4134	12mm	93mm	149mm	1.63mm	GDC4134X7
27/64	0.4219	15/32	3.6250	5.8750	0.0650	GDC4219X7
11mm	0.4331	12mm	93mm	149mm	1.70mm	GDC4331X7
7/16	0.4375	15/32	4.0000	6.1000	0.0680	GDC4375X7
11.5mm	0.4527	12mm	102mm	155mm	1.78mm	GDC4527X7
15/32	0.4688	15/32	4.0000	6.1000	0.0730	GDC4688X7
12mm	0.4724	12mm	102mm	155mm	1.86mm	GDC4724X7
31/64	0.4844	1/2	4.3120	6.2990	0.0750	GDC4844X7
1/2	0.5000	1/2	4.3120	6.2990	0.0770	GDC5000X7



**GORILLA DRILLS**

NOT EXACTLY WHAT WE HAD IN MIND  
WHEN WE SAY **HIGH PERFORMANCE**  
FOR ANY APPLICATION.



A general-purpose high performance and high penetration solid carbide drill capable of machining a vast range of work materials. Suitable for high efficiency precision machining and up to 50% faster than standard carbide drills. Not recommended for personal grooming.

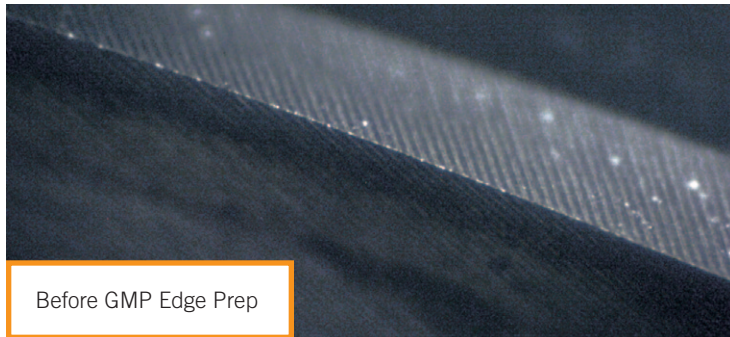
## GMP Edge Prep

Tool edge preparation is one of the four main factors in successful cutting tool manufacturing. The other three factors include tool substrate composition, tool geometry, and proper coating. While considerable resources have been channeled into making the processes of tool composition, tool geometry and coating more reliable and repeatable, tool edge preparation is fast becoming a necessity on all cutting tools manufactured of cemented carbide because of increased performance demands.

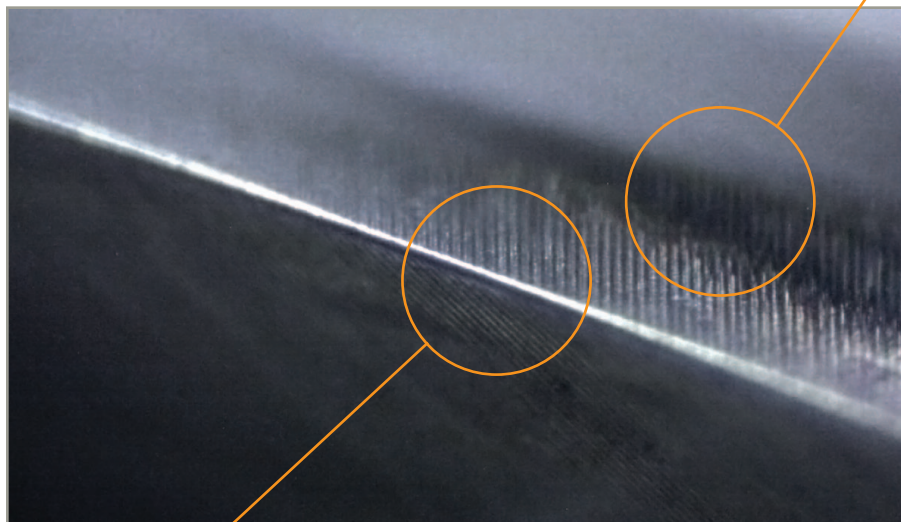
Edge defects are present in nearly all tools prior to edge prep. The defects are the result of the grinding process. Although microscopic in size, these defects must be eliminated to achieve optimum tool performance.

The tool edge preparation process, adds strength to the tool cutting edge, lengthens usable tool life, minimizes the propensity of the edge to chip, improves part quality and consistency, and enhances work piece surface finish.

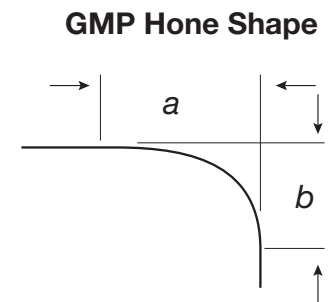
With GMP Edge Prep, we have taken edge preparation to the next level, making it a science. Now the technology and equipment exists to overcome nearly all the current processing problems and to produce a tool that will yield optimum performance in any given operation or application.



Seen here at 145x magnification the "ridges" created by the grinding process can create a fracture point on the sharp cutting edge of carbide.



GMP technology hones these "ridges" in a controlled environment to reduce the fracturing that occurs to the cutting edge during the milling process while greatly increasing tool life and enhancing finish.





COATINGS

# Standard and Specialty Coatings



## GMX-35

Special high-performance coating for high speed machining. GMX-35 performance surpasses all conventional coatings. This universal high-performance coating is especially designed for milling and drilling. Also suitable for dry machining.



## GMS<sup>2</sup>

CGC/Gorilla Mill introduces a revolutionary nanocomposite PVD coating process. GMS<sup>2</sup> marks a breakthrough in PVD deposition technology. The performance and hardness stem from the coating's unique structure. GMS<sup>2</sup> is specifically designed to punish high temp alloys and is stock standard on the new Gorilla Mill Phenoms.



## GDX-59

Carbide Grinding Company introduces a revolutionary PVD coating process. This process marks a breakthrough in PVD deposition technology. The performance and hardness of GDX-59 greatly increases tool life in drilling applications.

WORKPLACE MATERIAL	APPLICATIONS									
	Drilling	Turning	Milling	Tapping	Reaming	Broaching	Stamping	Deep Drawing	Forming	Injection Molding
Steels — general types	GDX-59	GDX-59	GMX-35	GMS2 GMX-35	GDX-59 GMS2	GDX-59 GMX-35	GMS2 GMX-35	GMS2 GMX-35	GMS2 GMX-35	GMX-35 CrN
Alloyed Steels • Tool Steels • Stainless Steel • Super-Alloys (Ni-Based)	GDX-59		GMX-35	GMS2 GDX-59	GDX-59 GMS2	GMS2 GDX-59	GMS2 GMX-35	GMS2 GMX-35	GMS2 GMX-35	GMX-35 CrN
Mg-Alloys	GDX-59	GDX-59	GMX-35 GDX-59	GMS2 GDX-59	GDX-59 GMS2	GMS2 GDX-59	GMS2 GMX-35	GMS2 GMX-35	GMS2 GMX-35	GMX-35 CrN
Cast Iron	GDX-59		GMX-35 GMS2	TiAlCN GMS2	GMX-35 GMS2	GDX-59 GMS2				
Ti-Alloys	GDX-59 ZrN	ZrN	ZrN	ZrN GMS2	ZrN	ZrN	ZrN	ZrN	ZrN	GMX-35 CrN
Al-Alloys	ZrN CBC	ZrN CBC	ZrN CBC	ZrN CBC	ZrN CBC	ZrN CBC	ZrN CBC	ZrN CBC	ZrN CBC	GMX-35 CrN
Copper	CrN	CrN	CrN	CrN	CrN	CrN	CrN	CrN	CrN	CrN
Brass/Bronze	GDX-59 GMS2	GDX-59 GMS2	GDX-59 GMS2	GDX-59 GMS2	GDX-59 GMS2	GDX-59 GMS2	GDX-59 GMS2	GDX-59 GMS2	GDX-59 GMS2	CrN GMX-35
Plastics	GMS2 GDX-59	GDX-59 GMS2	GMS2 GDX-59	GMS2 GDX-59						GMX-35 CrN

Recommendations are based on general machining conditions. Performance may be significantly influenced by factors such as rigidity of machine and setup, tool substrate, coolant conditions, etc.

Coating	TiN	TiCN	TiAlCN	TiAlN	ZrN	CrN	CBC	GMX-35	GDX-59	GMS2
Structure	Monolayer	Gradient	Gradient	Multilayer	Monolayer	Monolayer	Gradient	Gradient	Nano-composite	Gradient/ Nano-composite
Nanohardness (GPa)	24	37	28	28	20	18	20	38	42	45
Friction (fretting) coefficient	0.55	0.2	0.3	0.6	0.4	0.3	0.15	0.7	0.35	0.45
Thickness (µm)	2-4	2-4	2-4	2-4	2-4	2-4	0.5-1.5	2-4	2-4	1-4
Maximum Working Temperature	600° C (1110° F)	400° C (750° F)	500° C (930° F)	700° C (1290° F)	550° C (1020° F)	700° C (1290° F)	400° C (750° F)	900° C (1650° F)	1100° C (2010° F)	1200° C (2200° F)
Color	golden yellow	blue-gray	red-copper	violet	pale yellow	silver	charcoal gray	blue-black	silver-gray	violet-blue

Standard coating process temperature is 475° C (890° F).



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Fraction or Drill Size	Decimal Equivalent	Tap Size
80	0.0135	
79	0.0145	
1/64	0.0156	
78	0.0160	
77	0.0180	
76	0.0200	
75	0.0210	
74	0.0225	
73	0.0240	
72	0.0250	
71	0.0260	
70	0.0280	
69	0.0292	
68	0.0310	
1/32	0.0313	
67	0.0320	
66	0.0330	
65	0.0350	
64	0.0360	
63	0.0370	
62	0.0380	
61	0.0390	
60	0.4000	
59	0.4100	
58	0.0420	
57	0.0430	
56	0.0465	
3/64	0.0469	0-80
1.25 MM	0.0492	M1.6 X .35
55	0.0520	
54	0.0550	
53	0.0595	1-64,72
1/16	0.0625	
1.6 MM	0.0630	M2 X .4
52	0.0635	
51	0.0670	
50	0.0700	2-56,64
49	0.0730	
48	0.0760	
5/64	0.0781	3-48
47	0.0785	
2.05 MM	0.0807	M2.5 X .45
46	0.0810	
45	0.0820	
44	0.0860	
43	0.0890	4-40
42	0.0935	
3/32	0.0937	4-48
41	0.0960	
40	0.0980	
2.5 MM	0.0984	M3 X .5
39	0.0995	
38	0.1015	5-40
37	0.1040	5-44
36	0.1065	6-32
7/64	0.1093	
35	0.1100	
34	0.1110	
33	0.1130	6-40
2.9 MM	0.1142	M3.5 X .6
32	0.1160	
31	0.1200	

1/8	0.1250	
30	0.1285	
3.3 MM	0.1299	M4 X .7
29	0.0136	8-32,36
28	0.1405	
9/64	0.1406	
27	0.1440	
3.7 MM	0.1457	M4.5 X .75
26	0.1470	10-24
25	0.1495	
24	0.1520	
23	0.1540	
5/32	0.1562	
22	0.1570	
21	0.1590	10-32
20	0.1610	
4.2 MM	0.1654	M5 X .8
19	0.1660	
18	0.1695	
11/64	0.1719	
17	0.1730	
16	0.1770	12-24
15	0.1800	12-28
14	0.1820	
13	0.1850	
3/16	0.1875	
12	0.1890	
11	0.1910	
10	0.1935	
9	0.1960	
5.0 MM	0.1969	M6 X 1.0
8	0.1990	
Fraction or Drill Size	Decimal Equivalent	Tap Size
7	0.2010	1/4-20
13/64	0.2031	
6	0.2040	
5	0.2055	
4	0.2090	
3	0.2130	1/4-28
7/32	0.2187	
2	0.2210	
1	0.2280	
A	0.2340	
15/64	0.2344	
6.0 MM	0.2362	M7 X 1.0
B	0.2380	
C	0.2420	
D	0.2460	
1/4 E	0.2500	
F	0.2570	5/16-18
G	0.2610	
17/64	0.2656	
H	0.2660	
6.8 MM	0.2677	M8 X 1.25
I	0.2720	5/16-24
J	0.2770	
K	0.2810	
9/32	0.2812	
L	0.2900	
M	0.2950	
19/64	0.2968	
N	0.3200	
5/16	0.3125	3/8-16
0	0.3160	

P	0.3230	
21/64	0.3281	
fff		
Q	0.3320	3/8-24
8.5 MM	0.3346	M10 X 1.5
R	0.3390	
11/32	0.3437	
S	0.3480	
T	0.3580	
23/64	0.3594	
U	0.3680	7/16-14
3/8	0.3750	
V	0.3770	
W	0.3860	
25/64	0.3906	7/16-20
X	0.3970	
10.2 MM	0.4016	M12 X 1.75
Y	0.4040	
13/32	0.4062	
Z	0.4130	
27/64	0.4219	1/2-13
7/16	0.4375	
29/64	0.4531	1/2-20
15/32	0.4687	
12 MM	0.4724	M14 X 2.0
31/64	0.4843	9/16-12
1/2	0.5000	
33/64	0.5156	9/16-18
17/32	0.5312	5/8-11
35/64	0.5469	
14 MM	0.5512	M16 X 2.0
9/16	0.5625	
37/64	0.5781	5/8-18
19/32	0.5937	
39/64	0.6094	
15.5 MM	0.6102	M18 X 2.5
5/8	0.6250	
41/64	0.6406	
21/32	0.6562	3/4-10
43/64	0.6719	
11/16	0.6875	3/4-16
17.5 MM	0.6890	M20 X 2.5
45/64	0.7031	
23/32	0.7187	
47/64	0.7344	
3/4	0.7500	
49/64	0.7656	7/8-9
25/32	0.7812	
51/64	0.7969	
13/16	0.8125	7/8-14
21 MM	0.8268	M24 X 3.0
53/64	0.8281	
27/32	0.8437	
55/64	0.8594	
7/8	0.8750	1-8
57/64	0.8906	
29/32	0.9062	
59/64	0.9219	
15/16	0.9375	1-14
61/64	0.9531	
31/32	0.9687	
63/64	0.9844	1-1/8-7
1.0	1.0000	





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